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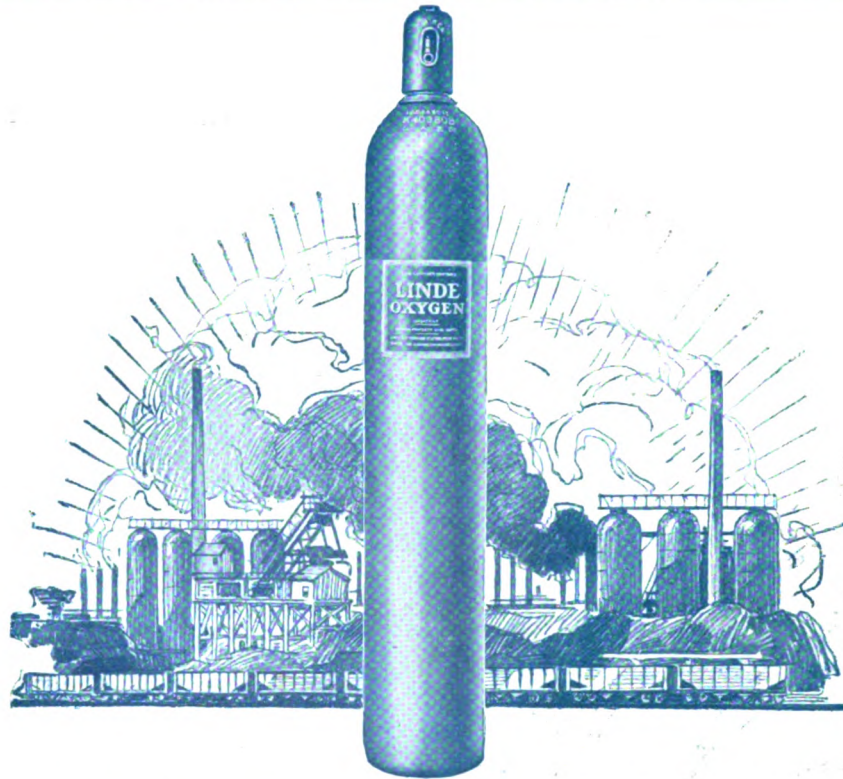
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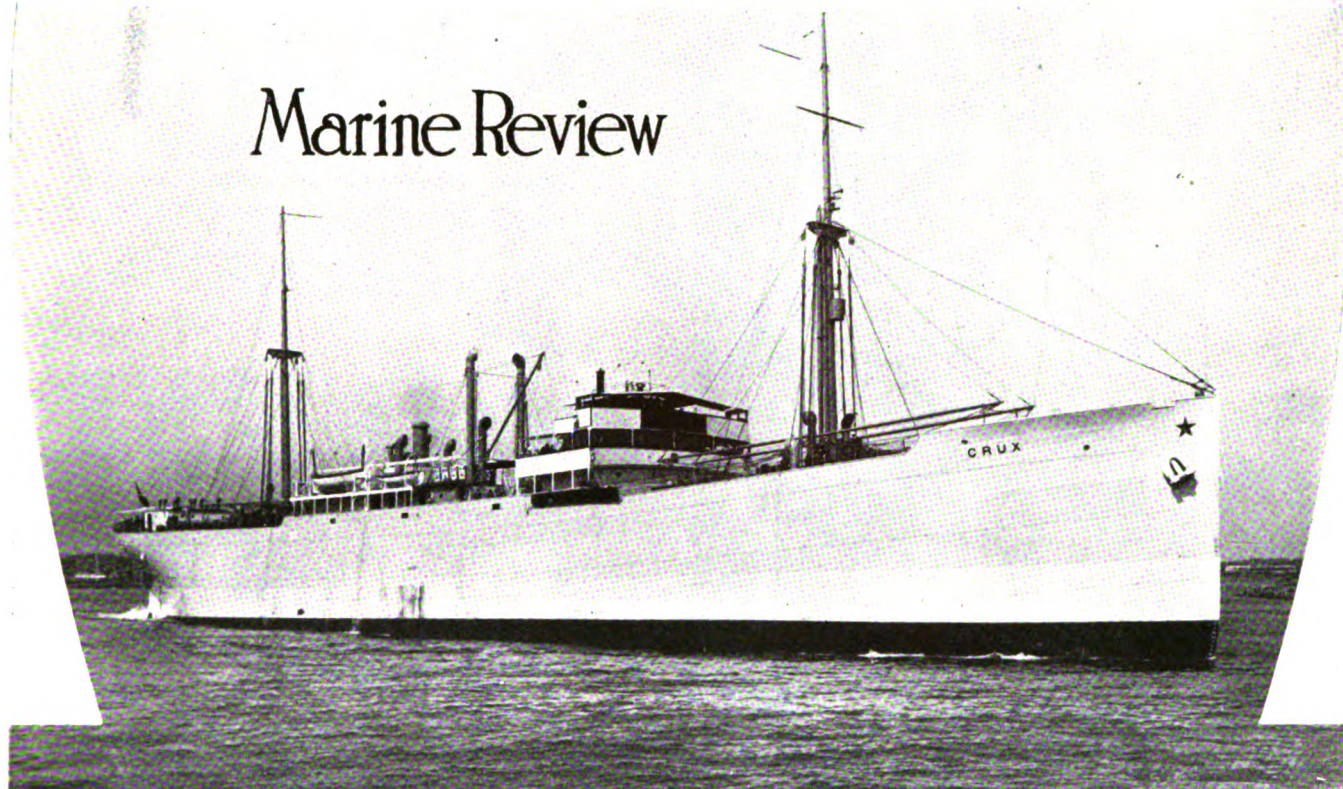
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# Marine Review



MOTORSHIP CRUX, TWIN SCREW TYPE, BUILT AT COPENHAGEN FOR NORWEGIAN OWNER

## Save Weight, Space in Motorship

Danish Builder Delivers Twin-Screw Carrier in Which Machinery Space Is Small and Equipment Light

**T**HE twin-screw motorship CRUX has just been built and engined by Burmeister & Wain Ltd., Copenhagen, Denmark for Det Bergenske Dampskibsselskab, Bergen, Norway. She has been built to Lloyd's special survey to class 100 A1 and according to the requirements of the Norwegian laws. The principal dimensions are as follows:

Length, overall, ft., in. ....	382 0
Length between perp., ft., in. ...	367 0
Breadth, molded, ft., in. ....	51 3
Depth, molded to shelter deck, ft., in. ....	34 0
Depth, molded to upper deck, ft., in. ....	25 6
Height of double bottom, ft., in. ...	3 10
Draft, loaded, ft., in. ....	23 2½
Displacement, tons; about ....	9700
Gross tonnage, registered, about ...	3828
Capacity of holds, grain, cubic ft., about ....	403,000
Capacity of holds, bales, cu. ft., about ....	373,000
Water ballast, tons ....	1210

Total capacity of fuel, tons ....	1100
Indicated horsepower, normal ..	2100
Fuel consumption per 24 hours, tons, normal .....	6.5

As the general arrangement drawings show, the ship is built with three complete steel decks, six watertight compartments and double bottom, the double bottom being fitted for carrying either fuel oil or water ballast.

### Officer and Crew Quarters

In the large deck house amidship, a saloon is tastefully fitted up and in the upper house are a few comfortable passenger cabins. In the deck houses on the shelter deck, the navigating and the engineer officers are berthed. In the aft part of the house above the motor casing, there is cook room, mess room for officers and crew and quarters for cooks and boys. In the deck houses above besides the passenger cabins are the cabin for captain, wireless cabin and card room. The crew's quarters are aft, the accommodation being ar-

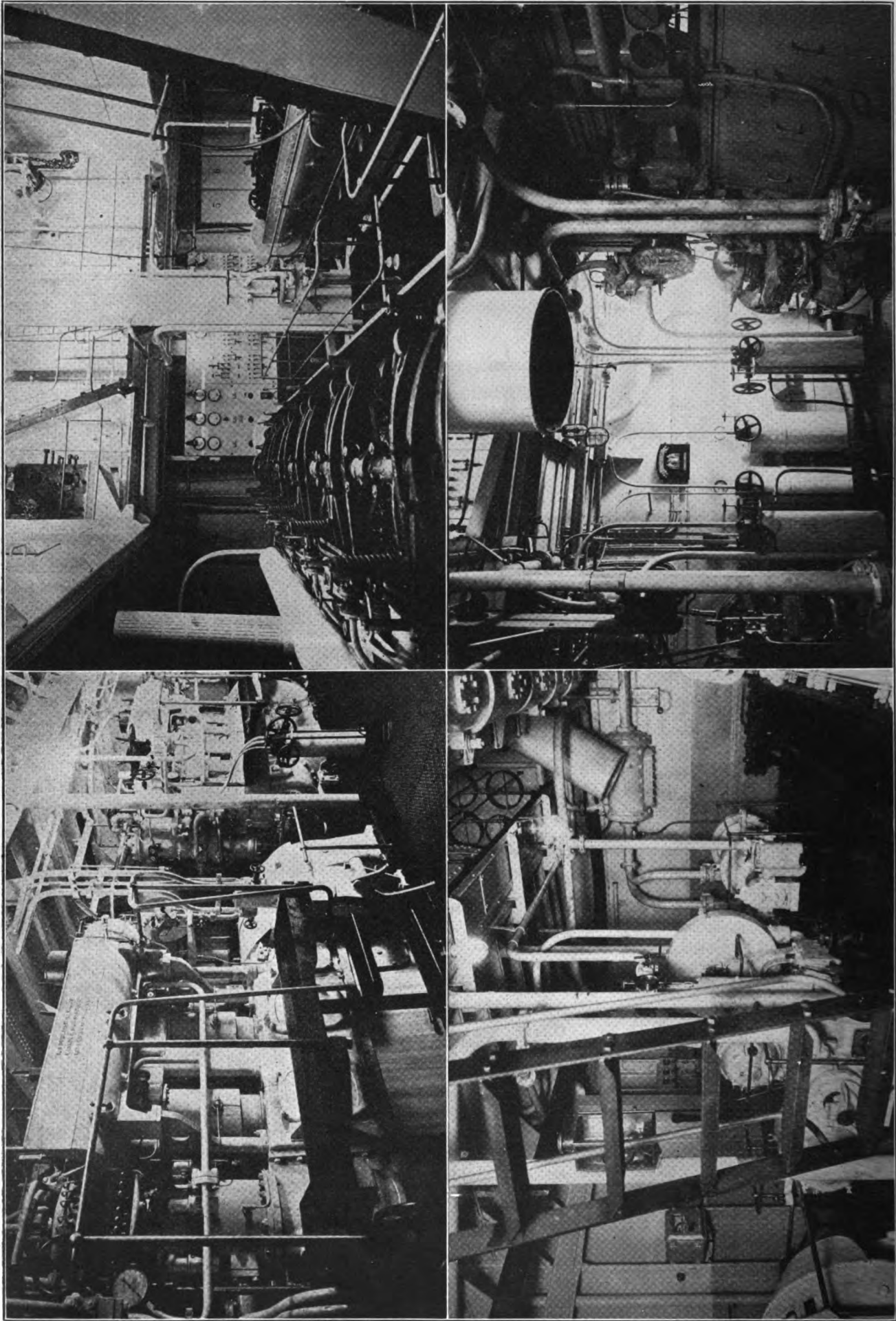
ranged below the shelterdeck in well lighted and ventilated cabins, two men in each.

Electric radiators are fitted for warming the accommodation. For fire extinguishing, an apparatus on the A. S. Lux C.O.<sub>2</sub> system is fitted with pipe connections to all the cargo holds, thus avoiding the use of an auxiliary steam boiler. A complete wireless telegraphy installation is carried.

The vessel carries two masts and is provided with ten 5-ton derricks. The derricks are served by eight 3-ton winches. In addition, two 5-ton winches are fitted aft and fitted for warping purposes. The winches are all electrically driven, and have been supplied by the Allmanna Svenska Elektriska Aktiebolaget. The steering gear is of the electric hydraulic type and is controlled from the bridge by means of a telemotor. The windlass is also electrically driven.

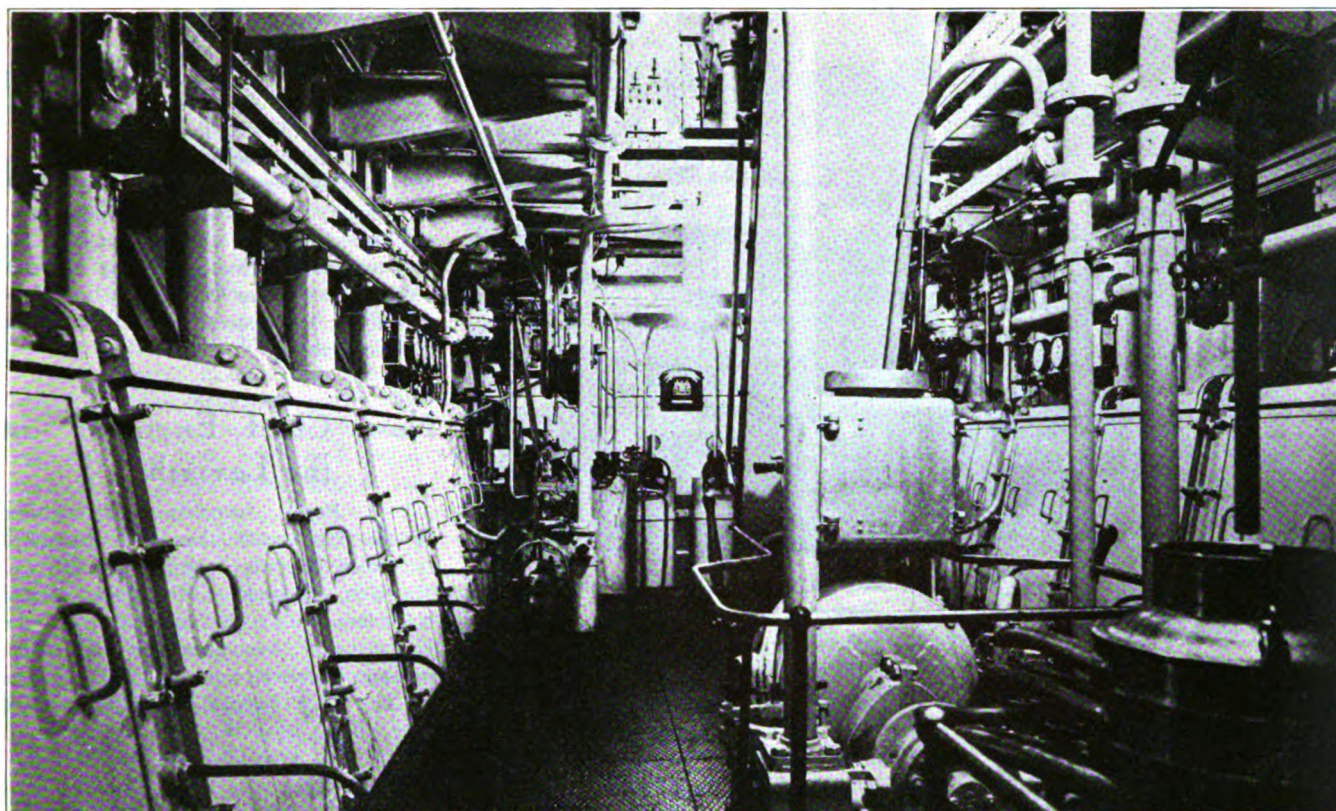
The propelling machinery consists of two 6-cylinder, 4-stroke, single acting diesel engines of Burmeister & Wain's





UPPER VIEWS SHOW (LEFT) GENERATING SETS, (RIGHT) TOP OF MAIN ENGINES. LOWER VIEWS SHOW (LEFT) BALLAST AND CIRCULATING WATER PUMPS, (RIGHT) MANEUVERING PLATFORM





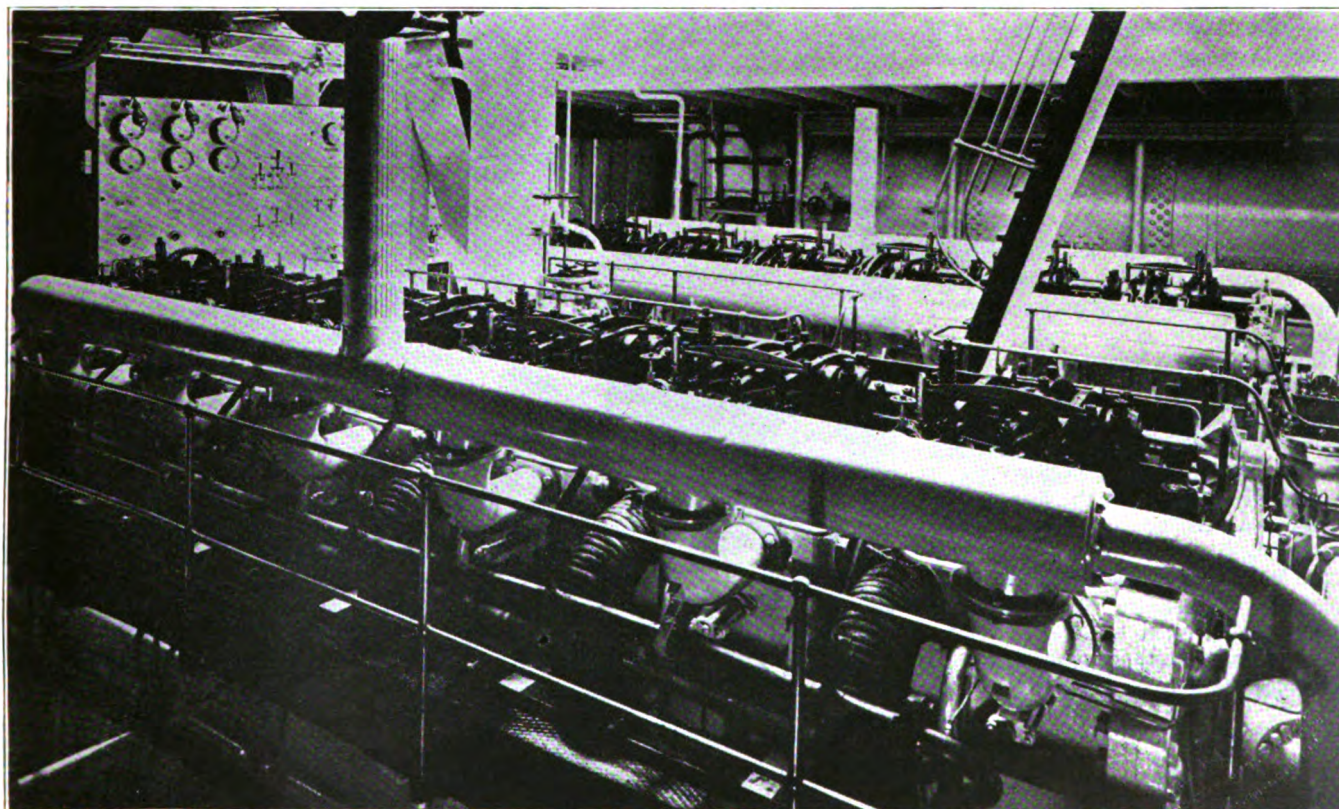
VIEW BETWEEN THE MAIN ENGINES

new light built type for twin-screw vessels, the particulars of the main engines being as follows:

Cycle of operation .....	4 stroke	Stipulated normal average speed at sea, knots .....	10¾
Number of cylinders .....	6	The main diesel engines are normally rated to develop 2300 indicated horsepower at 145 to 150 revolutions per minute, but owing to the low speed of the CRUX desired by the owners, the	
Revolutions per minute .....	130		
Indicated horsepower .....	2100		

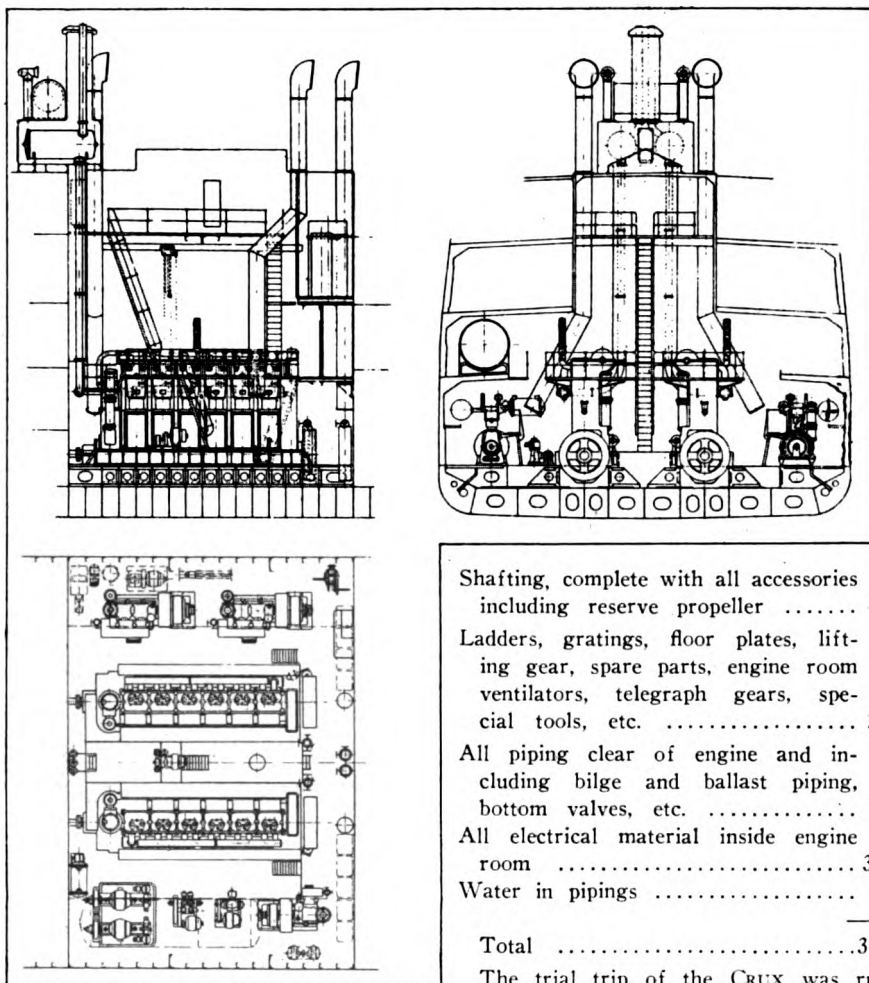
horsepower was in this special case reduced to 2100 at about 130 revolutions per minute. The daily fuel oil consumption is 6 to 6½ tons, giving the vessel a cruising radius of about 45,000 sea miles.

All the auxiliary machinery in the



VIEW LOOKING ACROSS ENGINE ROOM SHOWING TOP OF MAIN ENGINES





ARRANGEMENT OF ENGINE ROOM IN MOTORSHIP CRUX

engine room, as well as the deck machinery, is electrically driven. The current is supplied by three dynamos, one of 33 kilowatts and two of 66 kilowatts, driven respectively by one single cylindered and two twin cylindered auxiliary diesel engines designed and constructed by Burmeister & Wain. The pressure of the supply for power purpose is 220 volts, but for lighting and heating purposes this is transformed down to 110 volts by means of a rotary transformer.

Any one of the dynamos is sufficient to supply the necessary current required for normal working at sea, but two, or even all three, have to be in operation when the vessel is maneuvering in and out of harbor with the maneuvering compressor running or when loading and discharging cargo.

The machinery space is quite small, as shown by the drawing, the total length of the engine room being only 35 feet 5 inches. A low weight is also obtained, the figures being as follows:

	Tons
Main engines .....	162
Auxiliary engines .....	35
Auxiliary machinery .....	8.5
Reservoirs .....	20

on July 9 in the sound at Copenhagen, when a mean speed of 10.94 knots was obtained with a fuel consumption of 129.4 grammes (0.284 pounds) per indicated horsepower hour, the net calorific value of the fuel used being 10,069 calories per kilogram (18,100 B.t.u. per pound). The fuel consumption given above includes the consumption of the auxiliary engines producing the necessary current for driving the auxiliary machinery, the steering gear and the electric light.

## New Chief Engineer on the Leviathan

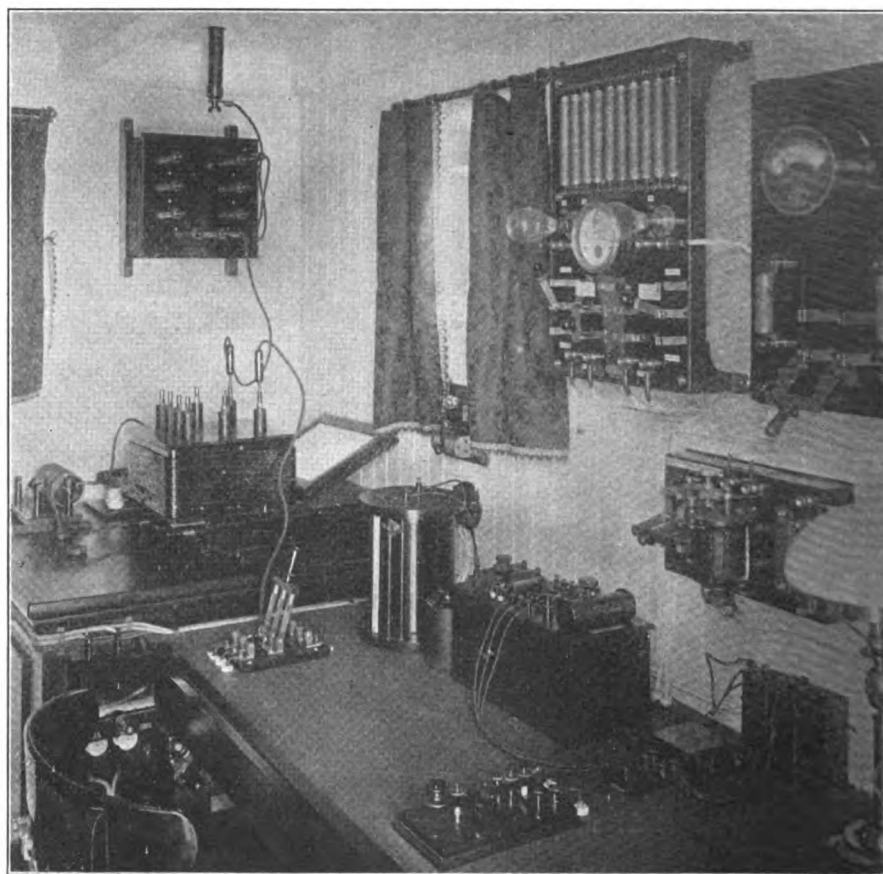
J. J. Fagan, formerly staff engineer of the LEVIATHAN, has been promoted to chief engineer succeeding R. L. Harrison, resigned. Mr. Fagan began his command at the completion of the LEVIATHAN'S second voyage, sailing in her for the first time as chief engineer on the third voyage which commenced Aug. 18.

## Sales of U. S. Vessels

CITY OF LOS ANGELES (ex-AEOLUS), combination passenger and cargo, 12,350 deadweight tons, 12,642 gross tons, to the Los Angeles Steamship Co., Los Angeles.

PYTHON—(a), steel cargo, 3400 deadweight tons, 2153 gross tons, to Anthony O'Boyle and Joseph F. O'Boyle, New York.

(a)—By the terms of sale, the purchasers are obligated to convert this ship to diesel propulsion.



WIRELESS EQUIPMENT IS COMPLETE

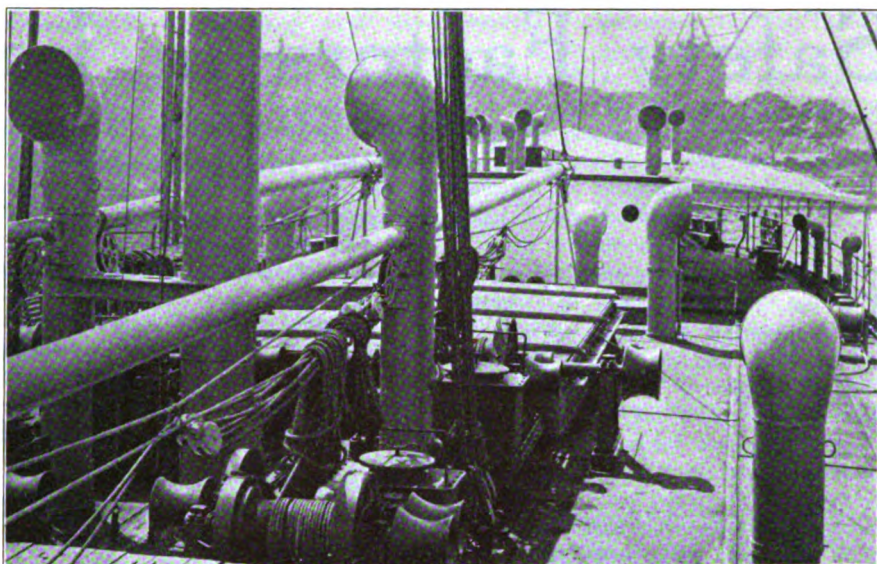


## Repair Work Occupies Pacific Yards

Marine mishaps have been numerous in north Pacific waters during the last month, two large repair contracts having been awarded. Todd Dry Docks, Inc., Seattle, has completed work on the Japanese steamer *MANDASAN MARU*, damaged in collision with the coasting steamer *RAINIER*. The Japanese freighter's stem was badly crumpled and several plates damaged. The Seattle plant completed repairs in the fast time of 10 days on a bid of approximately \$20,000. The *RAINIER* was so badly damaged that the hull is beyond repair and it is now being dismantled of machinery and equipment.

The Albina Marine Iron Works, Portland, Oreg., obtained the contract for repairing the Japanese steamer *YONAN MARU* which was floated with difficulty, after being aground near the mouth of the Columbia river for several days. Many plates will have to be replaced and faired. The successful yard's bid was \$137,680, time 40 days.

In addition to reconditioning and repair work, drydocking and other activity, Todd Dry Docks, Inc., has overhauled the Danish motorship *LEISS MAERSK* in preparation for a voyage to the Gulf of Mexico. This yard is also busy with its oil-burning equipment, having just landed a contract for installing this type of burner in the Canadian Pacific's transpacific liner *EMPRESS OF CANADA*. The order calls for 60 burners comprising the steamer's entire burner battery. Last winter the same plant installed 42 burners in the *EMPRESS OF AUSTRALIA* resulting in a substantial sav-



CRUX'S WINCHES AND ALL OTHER AUXILIARIES ARE ELECTRICALLY DRIVEN

ing of fuel oil. The success of the system prompted the latest contract which will be undertaken in October when the *EMPRESS OF CANADA* returns from the Orient.

Wood repair plants and shipyards on Puget sound report increased work, there being considerable activity in the construction of small pleasure craft and work boats. Two yards are each building four large scows while repairs to wooden craft are under way on a larger scale than normal at this season.

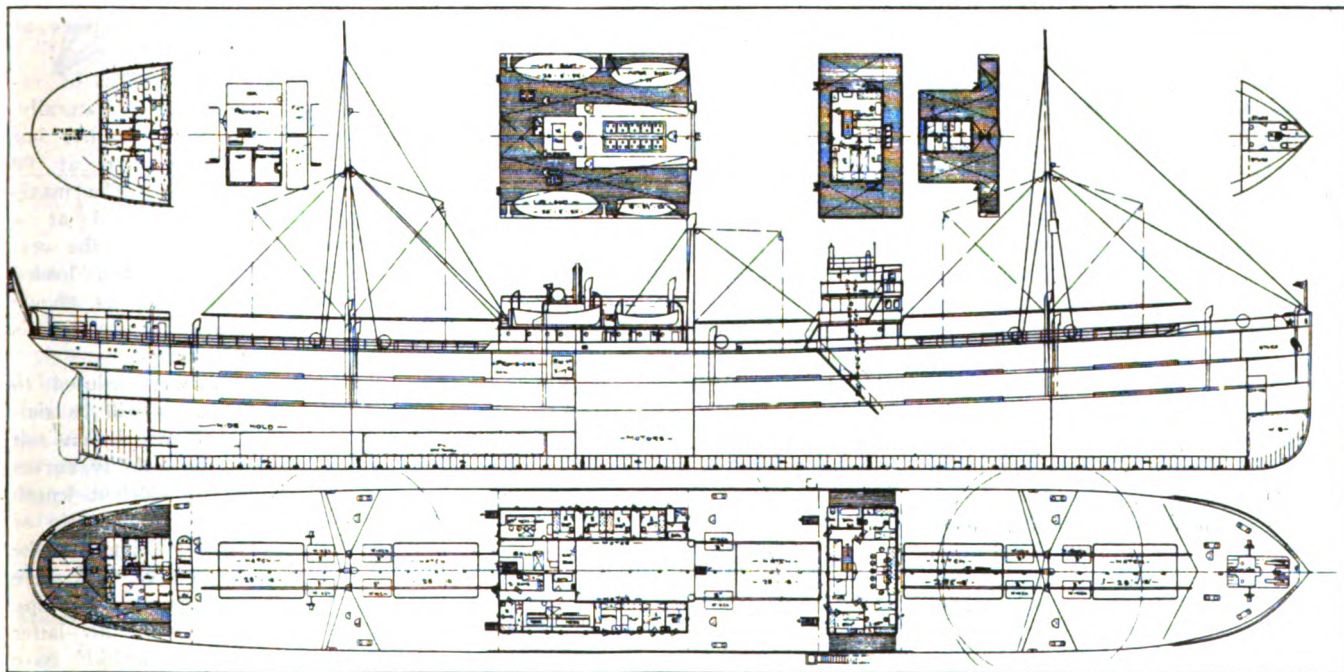
The yards of N. J. Blanchard Boat Co., Seattle, have launched the \$100,000 seagoing wood yacht *SAMONA* built to the order of W. J. Hole, Riverside, Cal. This cruiser is a triple screw, full diesel powered vessel, with a cruising radius of 5500 miles at 13 knots. She is

equipped throughout with electricity which will also be used for cooking and heating. The hull is double planked with Alaska yellow cedar, the deck is of teak and Alaska cedar while the interior is finished in rosewood brought from Honduras. The equipment includes a Sperry gyro-stabilizer.

## Obituaries

Milton L. Towne, for many years chief engineer of the Oceanic liner *SONOMA*, died Aug. 19, following an operation for appendicitis at a San Francisco hospital.

Arthur Page, well known Pacific coast shipbroker, and head of the chartering firm of Page Bros., died in San Francisco on Aug. 18. He was connected one time with Balfour, Guthrie & Co.



GENERAL ARRANGEMENT OF NEW TWIN SCREW MOTORSHIP



# Safety Factors in Lake Ships-I

## Investigation Made of Elements Affecting Safety of Fresh Water Freighters—Wind Pressure

BY ANDERS LINDBLAD

**B**OTH the static and the dynamical stability depend upon the relative position of the center of gravity of the ship and its cargo and the center of buoyancy. The position of the center of gravity of the bare ship itself is, generally, once for all fixed by the construction and is largely governed by the depth to beam ratio and the extent of the superstructures. The center of gravity of the cargo will change from time to time. Its position depends not only on the amount and density of the cargo but also, and very largely so, on how the cargo is stowed. The center of buoyancy depends solely upon the form of the vessel and does not change during the life of the vessel.

The naval architect is able, in the design of the vessel to fix both the center of gravity of the light ship and the center of buoyancy. He can also estimate the effect which different conditions of loading will have on the stability; but it is the navigator who really controls these conditions, because, in the loading of the vessel, he actually fixes the resulting center of gravity of the ship and her cargo.

The aim of the designer is to produce a ship which will be stable under all conditions of loading and at the same time be reasonably comfortable for those on board. For flush deck vessels a ratio of beam to depth exceeding 1.6 will generally insure sufficient stability even at larger angles of inclination.\* On the typical lake freighter, the beam to depth ratio is from 1.75 to 2.0.

By a comfortable ship we mean generally a ship which is easy in her movements and, when inclined, returns to the upright slowly without any sudden jerks. Such a vessel can be constructed if, by cutting down the beam, the initial stability is kept at a moderate amount.

The question of stability has not had much influence on the design of the modern lake freighter whose dimensions have been fixed entirely by other considerations. As the draft is limited to about 20 feet it was found necessary from the viewpoint of economy to adopt a much wider beam than is needed from considerations of stability alone. For ordinary flush deck vessels a beam to

*IT IS well known that the greatest development in methods of cargo handling and transportation in the world has taken place in the Great Lakes district. The fact that the quantities of cargoes in any one year reach very large proportions, combined with their financial importance to the whole industrial life of the nation, has made it possible to develop a transportation system which is remarkably efficient.*

*One is, without doubt, justified in saying that the typical so called "lake freighters" are at the present time the most efficient carriers of bulk cargoes. They have been designed to suit the special conditions of the lake trade. It is apparent that the naval architects on the Great Lakes have not been influenced by any orthodox ideas in ship construction or inclined to follow traditional salt water practice in working out the design. Some of the details of the construction have been subjected to a certain amount of criticism, and several times it has even been suggested that with respect to seagoing qualities the lake freighters would not measure up to the usual standard of other ships.*

*In 1920, when a representative government committee on bulkheads and freeboard was appointed by the secretary of commerce to consider matters relating to a compulsory loadline, it was decided that a special subcommittee should investigate the vessels of the Great Lakes.*

*Under the direction of the members of this subcommittee, H. N. Herriman and Prof. H. Sadler, the author, during 1920-21 was engaged in a series of investigations regarding such factors which were of special interest for the establishment of freeboard regulations for the Great Lakes vessels. Through the courtesy of the members of this committee I have been permitted to use for this article all the unpublished material upon which they based their recommendations.*

draft ratio of about 2.1 may ordinarily be considered as safe. On the lake freighters this ratio is often around 3.0 and seldom less than 2.5. It is, therefore, to be expected that they are unusually "stiff," which the following calculations

as well as the practical operation of them have shown to be the case.

### Initial Stability

Fig. 1 shows some curves of statical stability for a lake vessel, 590 x 64 x 33 feet under different conditions of loading as described on the diagram. This ship has clearly in all conditions an unusually large metacentric height, *GM*, and thus possesses great initial stability.

In the light condition, she has a *GM* of 35.96 feet, which is excessive and necessarily leads to a very "stiff" and decidedly uncomfortable ship. Even the *GM* of 16.75 feet with all the ballast tanks filled with water is much more than is wanted. It is, therefore, rather common even on vessels of less beam to leave some of the tanks only partly filled, or to take off the manhole covers and permit free water in a part of the hold. In this way the "virtual" center of gravity is raised and the ship will be slower and less violent in her movements.

### Stability at Larger Angles

The diagram, Fig. 1, shows that at an angle of 90 degrees this vessel still has a large righting moment in all conditions of loading except when loaded with a homogeneous cargo, which entirely fills the cargo holds; in this condition the righting arm vanishes at about 86 degrees.

Fig. 2 demonstrates the effect of reducing the beam to 58 feet. Naturally, the righting arm is here smaller, but it is still rather large even at 90 degrees in most conditions. The maximum righting arm is reached at a smaller angle of heel than for the vessel of 64-foot beam. When loaded with a homogeneous cargo, as shown by curve III, the range of stability is reduced to about 80 degrees.

If the beam is further reduced to 50 feet, the stability curves will be similar to those of cargo vessels on salt water. Fig. 3 gives the stability curves for a lake freighter of 420-foot length with a beam of 50 feet. The ratio of beam to draft of 2.63 is still high, and the righting lever is, therefore, even here larger than in most ocean going ships.

In order to compare with this latter type of ships, curves IV and V have been added. They are for two typical salt water vessels of nearly the same

\*See "The Safety of Ships at Sea," by W. T. Abell, Liverpool Engineering society, 1911.



dimensions as the lake freighter. Curve IV is for a ship of the following dimensions, 420 x 50 x 32 feet. Loaded with a homogeneous cargo to 24.5-foot draft the  $GM$  is 1.85 feet. Curve V is for a vessel 395 x 51.5 x 29.25 feet, the displacement is 10,827 tons at a draft of 23.96 feet, and the  $GM$  is 1.9 feet.

Clearly, the righting arm of the lake freighter, fully loaded with a homogeneous cargo, (curve III) is approximately twice that of the 420-foot ocean going vessel, loaded in the same way. Owing to the smaller molded depth the point of vanishing stability of the lake vessel is, however, reached at a smaller

investigate the effect which wind pressure will have in heeling these vessels.

In the design of ordinary land structures, it is common to assume a wind pressure of 20 to 30 pounds per square foot,\* which corresponds to a wind velocity of 71 to 87 miles per hour, according to the formula used by the United States weather bureau. For very high structures, such as radio towers and suspension towers for very large suspension bridges even higher wind pressures have to be provided for. The Forth bridge in Scotland, for example, was designed for 56 pounds pressure, although the maximum recorded there has

observed in December, 1921 at Buffalo, seems to be the highest in that district of which we have any record. A wind of this velocity would exert a pressure of about 37 pounds per square foot.

It is common to use the following equation in calculating the heeling moment owing to wind pressure.

Wind moment  $P \times A \times \cos. \frac{1}{2} X \times h$   
where  $P$ =pressure in pounds per square foot

$A$ =area of vessel above water in square feet

$h$ =distance between center of wind pressure and the center of lateral resistance.

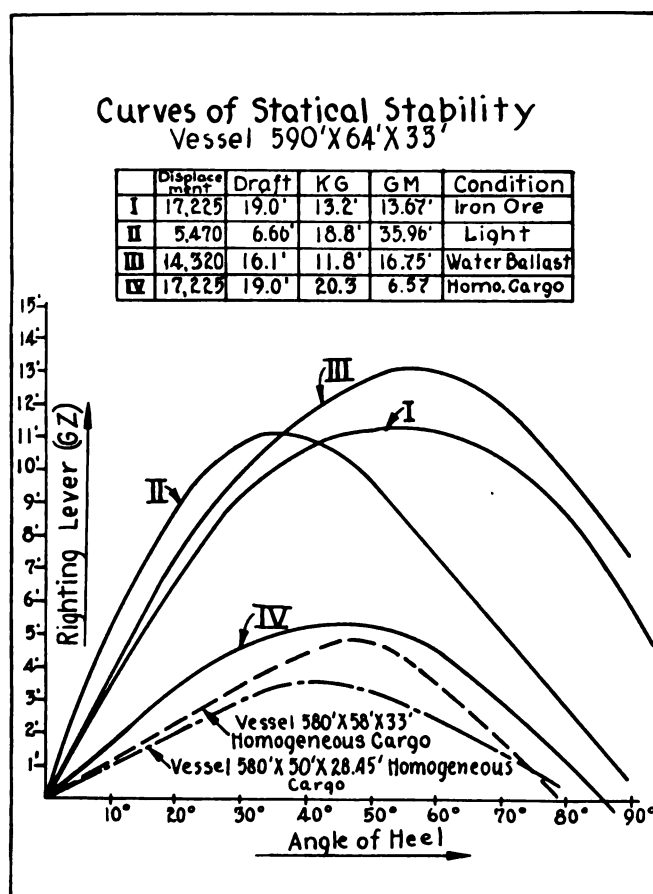


FIG. 1—CURVES OF STATICAL STABILITY UNDER DIFFERENT CONDITIONS OF LOADING

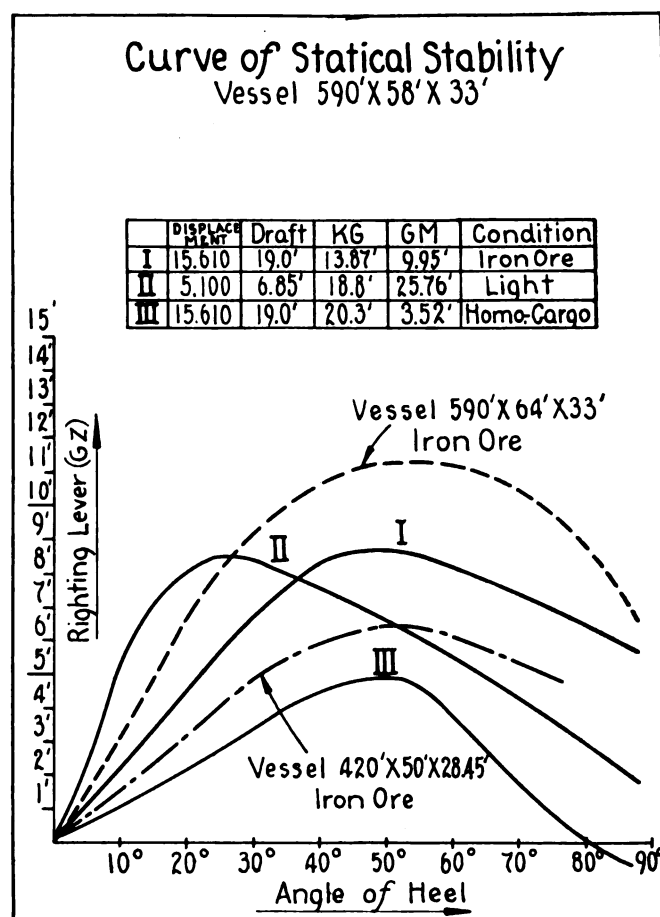


FIG. 2—STATICAL STABILITY AS INFLUENCED BY REDUCTION OF BEAM TO 58 FEET

angle of heel, namely 80 degrees against 86 degrees for the ocean going ship.

As very few, if any, of the lake freighters have less beam than 50 feet, I have not investigated the effect of reducing the beam below this limit. There is, however, no doubt that in order to get such comparatively small values of the righting arm, which are considered safe for ocean going ships, we would need to adopt a much smaller beam than 50 feet for the lake freighter.

#### Stability as Affected by Wind Pressure

In order to demonstrate the real magnitude of the righting moments of the lake freighters, it is of interest to

been only 41 pounds per square foot.†

The highest wind velocity on record seems to be 140 miles per hour observed at Burwood, La., during a hurricane in September, 1915; this would correspond to a wind pressure of about 74 pounds. In the Great Lakes district, winds of 80 to 90 miles per hour have been recorded several times. The velocity of 96 miles per hour, which was

\*"Unusual Engineering Forces as Design Problems," by Charles Evan Fowler in *Engineering and Contracting*, June 28, 1922.

†Page 503 "A Manual of Naval Architecture," by Sir W. H. White.

$X$ =angle of heel.

In Figs. 4 and 5 are plotted the curves of the wind moments as calculated by this equation for a 590-foot vessel and also the stability curves for this vessel under different conditions of loading. The figures show that the wind moments rapidly decrease at larger angles of heel. In vessels with large beam and freeboard it will be found that as the vessel is heeled over to greater angles a larger part of the vessel will be exposed above the waterline, and the center of wind pressure will be raised. The draft also increases, and the center of lateral resistance is lowered. These changes are not taken



### Curve of Statical Stability

Vessel 420' X 50' X 28.45'

	DISPLACEMENT	Draft	K.G.	G.M.	Condition
I	9,120	19.0'	13.53'	7.35'	Iron Ore
II	9,120	19.0'	15.77'	5.11'	Wheat Cargo
III	9,120	19.0'	17.5'	3.38'	Homogeneous Cargo
Ocean Going Vessels					
* IV		24.5'		1.85'	Homogeneous Cargo
* V	10,827	23.96'		1.9'	" "

\* IV Dimensions 410' X 50' X 32'  
(From "Know Your Own Ship" by T. Walton Page 154)

\* V Dimensions 395' X 51.5' X 29.25'  
(From "Ship Construction and Calculations" by Geo. Nicol Page 205)

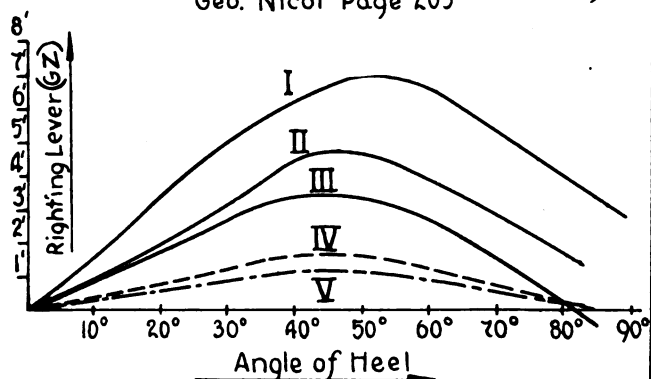


FIG. 3—STATICAL STABILITY OF SMALLER LAKE SHIP AND OCEAN GOING VESSELS

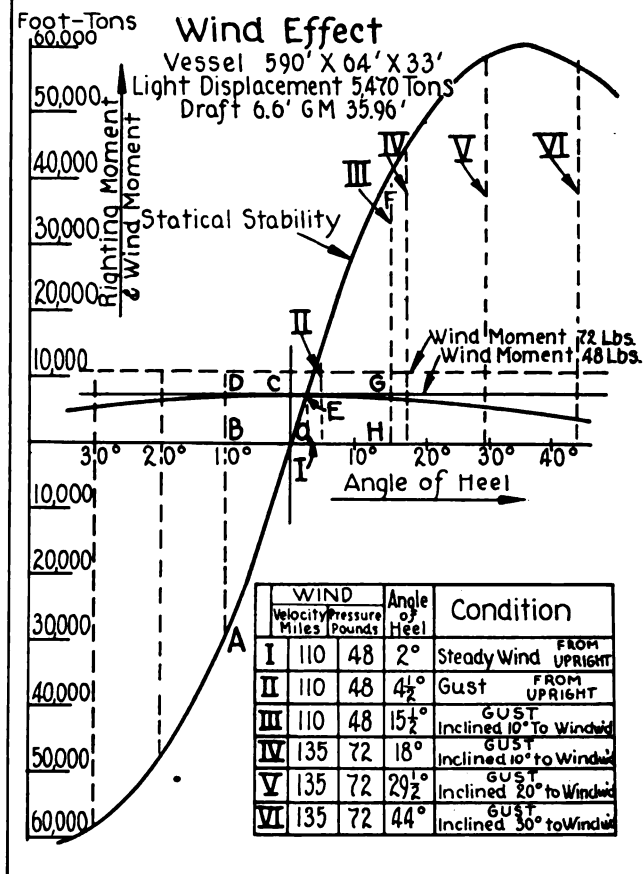


FIG. 5—SAME CURVES AS FIG. 4 ON LARGER SCALE AND COVERING ROLLING TO BOTH SIDES

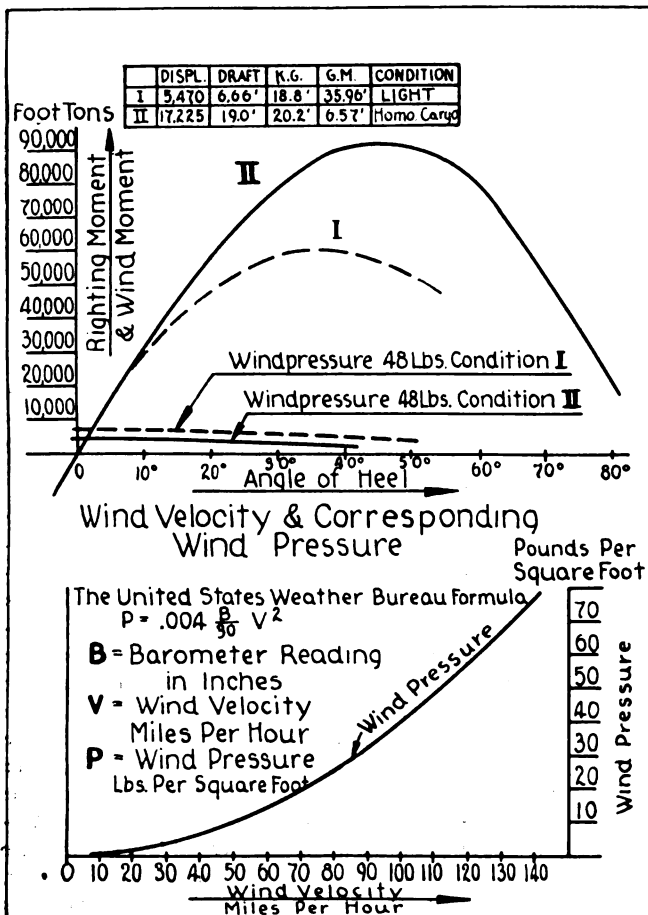


FIG. 4—SHIP'S RIGHTING MOMENT AS COMPARED WITH UPSETTING WIND MOMENT

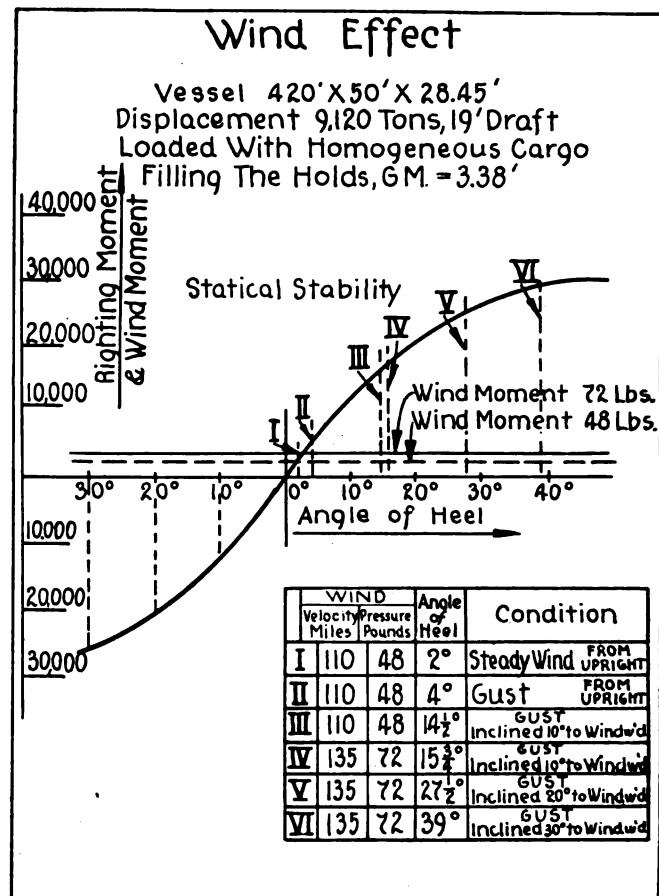


FIG. 6—EFFECT OF WIND PRESSURE ON LAKE VESSEL OF SMALLER BEAM



into account in the above equation. I have, therefore, followed the method used in a paper by A. T. Wall\* which assumes the moment of the wind pressure to be constant at all angles of inclination.

Fig. 4 shows clearly how large the righting moment is in comparison with the upsetting wind moment. Curve II represents the vessel at light draft, without cargo or ballast, in which condition she has the largest area exposed to the wind. A steady wind pressure of 48 pounds per square foot will heel over this vessel only to about 2 degrees. Under a sudden gust of the same force an inclination of about  $4\frac{1}{2}$  degrees will be reached. Such a wind pressure of 48 pounds would represent a wind velocity of about 110 miles an hour, which is more than has ever been recorded in the Great Lakes district.

#### Effect of Heavy Squall

The most severe condition likely to occur is when the ship is heeled over to windward and is suddenly struck by a squall just as she is about to return to the upright. Here, both the righting moment and the wind moment act together until the upright is again reached, and the vessel will consequently roll over to a larger angle than that from which she started. To illustrate this case, Figs. 5 and 6 have been drawn. Fig. 5 represents the same curves as Fig. 4; they are only plotted on a larger scale and extended to cover rolling to both sides.

Assume the vessel to be struck by a squall of 48 pounds pressure at the completion of a 10-degree roll to windward. The wind moment and the righting moment of the vessel will at first act together until the vessel is upright. The area *EOADC* represents the work done to right the vessel. Hereafter the righting moment of the ship will act against the wind, and the vessel must roll over to a point *H*, about  $15\frac{1}{2}$  degrees, until the area *EFG* is equal to the area *EOADC*. The remainder of the area under the stability curve to the right of *FG* represents the reserve of dynamical stability.

It is evident from this diagram that the reserve of stability of this vessel is very large even when greater angles of heel are reached. The table in Fig. 5 gives the results for several different conditions of wind pressure and initial heel of the ship.

Fig. 6 illustrates the effect of wind pressure on a vessel with the smaller beam of 50 feet. It will be noted that the ordinates of the stability curve for

this ship are approximately only one-half of those of the vessel with a 64-foot beam, as shown in Figs. 4 and 5. The table gives the results computed for different wind velocities. Even for this vessel it is found that the wind pressure is not able to effect any unusually large angles of heel, and that the vessel will still have a large reserve of dynamical stability under all conditions. It may also be noted that in all the above calculations the retarding effect of the frictional resistance of the water has been neglected, when it really will diminish to some extent the angle of heel.

For the vessels chosen in the above investigation, it is clear that even the strongest wind recorded has no dangerous heeling effect. As these vessels in no respect differ from other lake freighters it thus appears that the lake freighters in general have an unusually large margin of stability and that there is no danger that under the assumed conditions they are liable to capsize.

Another question in connection with the stability is the effect of shifting of cargo, which will be considered in the following issue.

(To be continued)

### Frisco Yards Have Rush of Repair Work

Activities in the San Francisco bay shipyards are greater now than at any time in the history of the port with the exception of the war period. The greater part of the work being done is in reconditioning and repairing and in changing from coal burning to oil burning. The last launching of a new vessel occurred on June 5 when the *LEBORE* hit the water from the ways of the Bethlehem Shipbuilding Corp. This vessel is now being completed for the account of the Ore Steamship Co. No other new ships are under construction. This great activity is all the more remarkable when it is considered that boiler makers and shipfitters went out on strike on the first of August. According to officials of the various companies the situation is well in hand and the men are returning to work right along.

The General Engineering & Drydock Co., San Francisco, was awarded the contract Aug. 29 for general overhauling of the shipping board steamer *PALLAS* on a bid of \$11,730.

The Hanlon Shipbuilding & Drydock Co., San Francisco, secured the award, at a figure of \$68,790, for conversion of the steamer *POINT LOMA* into a lumber carrier and from a coal burner into an oil burner. The *POINT LOMA* is owned by the Hart-Wood Lumber Co.

and is a steel vessel of 2119 gross and 1289 net tons register, 251 feet in length, 43.5 feet beam and 18.1 feet depth.

The Los Angeles Shipbuilding & Drydock Co., Los Angeles, was low bidder at \$109,120, for the removal of turbine engines and the installation of reciprocating engines in the steamer *MISKIANZA*.

The Hanlon Shipbuilding & Drydock Co. secured the contract for renewing the lower section of the stern frame of the shipping board steamer *WEST MAHWAH* at a figure of \$14,894. The Crowley Marine Railway Co., San Francisco, secured the award for miscellaneous repairs at \$14,646.

The contract for general repairs on the army transport *THOMAS* was secured by the Bethlehem Shipbuilding Corp., San Francisco, at \$51,240.

The General Engineering & Drydock Co. was awarded the contract for conversion of the Mexican Navigation Co.'s steamers *WASHINGTON* and *BOLIVIAN* from coal burners to oil burners at a figure of \$10,865 each.

The General Engineering & Drydock Co. secured the contract for reconditioning the shipping board steamer *WEST HENSHAW* at \$17,505.

The Moore Drydock Co., San Francisco, secured the contract for renewing eight bottom plates, repairing five and installing six furnaces in the boilers of the Norwegian steamer *SAN JOAQUIN*, under charter to the Union Oil Co., at a figure of \$18,755.

### August Ore Shipments

While shipments of iron ore from the Lake Superior district were slightly less in August than in July, last month's total was the third largest on record and made the fifth month in the history of lake trade in which more than 10,000,000 gross tons of iron ore have been moved. These five months in order are: July, 1918, with 10,659,203 tons; July, 1923, with 10,411,248 tons; August, 1923, with 10,296,133 tons; July, 1917, with 10,241,633 tons and August, 1917, with 10,146,786 tons. Sustained records for 2-month periods have been made only in 1917 and 1923. In the last two months, about 320,000 gross tons more were carried than in the matching period of six years ago. The August record by ports together with the season's total to date follow:

Port	August, 1923	To Sept. 1, 1923
Escanaba .....	875,772	3,995,467
Marquette .....	442,370	1,778,343
Ashland .....	1,081,635	4,149,251
Superior .....	3,359,005	11,007,586
Duluth .....	3,498,358	11,823,332
Two Harbors .....	1,038,993	4,138,885
Total .....	10,296,133	36,892,864
1923 increase .....	1,279,707	10,582,925

\*"Safe Stability and Economic Use of Water Ballast." Trans. I. N. A., 1914.



# Better Tone in Insurance Market

Past Few Weeks Bring More Confidence to Underwriters—Lake Business in 1923 Has Been Satisfactory

**A** FEELING of confidence that has been lacking for many a month is noted in underwriting circles with the close of the holiday season. One of the causes contributing to the improved outlook is the fact that practically all the outstanding war settlements have been wiped out and the companies are ready to go ahead. Repair costs are below the peak of a year or so ago and most of the marine insurance offices have cut out their inefficient help and have reduced their forces to just enough to take care of the business. It took the insurance business a long time to realize that it must reorganize to meet the changed conditions but the lesson has been driven home at last and now it stands ready with decks cleared for action.

Seasonal dullness has prevailed during the summer months but nevertheless some nice business has been put on the companies' books. Losses have been light, no very heavy casualty having been reported in a long time.

Underwriters are well pleased with the lake business. Hull business is slightly above previous years and the movement of cargoes has been much heavier. The season is not yet closed and it is hoped that the activity will keep up until the end. It is pointed out that a good many new boats have been built. This business will swell the marine market, it is predicted. All in all, this year's Great Lake business has done a great deal to restore the confidence of marine underwriters.

\* \* \*

## Check Flood of Heavy Pilferage Losses

**E**FFORTS to check the pilfering of merchandise in transit is meeting with some success, New York underwriters claim, and it is stated that claims for such losses show a sharp decline. The chief cause of alarm at the moment seems to be from local epidemics of thievery which break out in unexpected places and the damage is done before it can be stopped. Furs are the latest attraction for the pilferer and several companies report losses. The skins lost were shipped from Russia to New York and were carefully checked before being baled and shipped. Underwriters believe that the abstractions were made during the discharging of the cargoes in the harbor of New York.

Co-operation on the part of trade associations and civic organizations has resulted in a number of companies that ceased writing the business again accepting theft and pilferage business. Requirements of the various companies differ a great deal, however, some underwriters showing extreme caution in accepting business, requiring an inspection before the shipment is made and writing only such goods as are packed according to specifications of the company.

\* \* \*

## Make Report on Condition of Young Firm

**N**EW York state insurance examiners have just concluded an examination of the Bankers & Shippers Insurance Co., New York. The company is only four years old and the report of the department has been awaited with interest in underwriting circles. The company has not been as successful in its marine operations as some others according to the report.

The report on the Bankers & Shippers shows once more the difficulties that stand in the path of the new company seeking a footing in the marine insurance field. Marine business requires a first class underwriter with a great deal of experience. Many marine underwriters in this country are young men that were drafted into a business that boomed during the war and it is taking them a long time to readjust themselves.

\* \* \*

## Still Hope for Relief from Taxation

**D**ESPITE promises of help and professed sympathy, nothing has been done so far to relieve marine insurance from a form of unfair taxation which levies a charge on the gross premiums paid a company instead of the net profits. Underwriters have been most persistent in their protests against the payment of a heavy tax on gross business when losses have been in excess of premiums. For several years they have sent representatives to the annual meetings of the National Convention of Insurance commissioners and last year were successful in winning the sympathy of that body which promised help. The commissioners held their annual meeting this year in August. When

the representatives of the American Institute of Marine Underwriters again took up their position they found that they had lost rather than gained ground. There has been an unusually large number of changes in the ranks of the state supervisors of insurance and instead of finding men familiar with their grievance they found many officials to whom the whole thing was new.

The question of taxing marine companies came in for very little attention, matters of more importance seemingly having the attention of the commissioners. About the only reference made to the subject was by Supt. Francis R. Stoddard Jr., New York, who read to the convention a letter from the attorneys of the insurance companies describing what the commissioners had done at previous conventions. The New York superintendent is apparently the companies' one hope for he is in sympathy with their stand and championed a bill providing for relief that failed to get through the New York legislature but is said to be slated for passage at the next session.

\* \* \*

## Lawsuits Follow Rapid Exchange Fluctuations

**T**HE fluctuations in exchange is giving rise abroad to disputes that are continually being brought before the courts for settlement. An interesting decision, based on the fluctuations of foreign currency, has been handed down by a British court in the case of *Larson v. Anglo American Oil Co.* The defendant had effected insurance in sterling instead of kroner as instructed. It appeared that the plaintiff gave instructions to the defendants to insure in London a steamer for 2,000,000 kroner. The defendant was not able to do this and without any notification effected an insurance in sterling for a sum equivalent to two million kroner at the rate of exchange then prevailing.

The steamer became a total loss and owing to the fall in the rate of exchange the amount paid to the plaintiff proved to be about \$45,000 short of the two million kroner for which the steamer was supposed to have been insured. The judge held that the action of the defendants in effecting an insurance in sterling instead of in kroner constituted a breach of con-



tract and judgment was given for the plaintiff.

In handing down his decision, the judge said that it might well be that if the defendants, on finding that they could not obtain insurance in kroner in London, had referred the matter to the plaintiff for further instructions he would have been willing to have the insurance in sterling but they had acted without consulting him. The contract referred to kroner and unless there were any other circumstances to show that the parties really contemplated either kroner or their equivalent in sterling the plaintiff was entitled to kroner and nothing else. The judge declared that he did not accept the contention that instructions to insure in the London market carried with them the right to insure in the ordinary currency of that market.

\* \* \*

### British Market Reveals New Strength

RATES are stiffening and there is less wild competition in London marine circles, according to R. E. Stronach, of the marine department of the Aetna Insurance Co., Hartford, who has just returned from abroad, in an interview with an insurance journal. More business is being placed in London on account of the stability of the sterling and continental firms are placing a good share of their business there.

\* \* \*

### New Agency Takes Charge on Pacific Coast

THE appointment of a new marine general agency to handle the business on the Pacific coast of the Maritime Liverpool & Fidelity Phenix Insurance Co. has been announced. The new agency will be known as Mathews & Livingston and will be located at San Francisco.

\* \* \*

### Norwegian Company Will Seek U. S. Trade

IT IS announced that the Norwegian Atlas, which has been dormant in this country, will again become an active factor in the marine insurance market. Bjarne Holst, secretary of the company at the home office in Christiania has been sent to this country to take charge of the underwriting activities. These were previously handled through the Northern Underwriting Agency which was the United States manager of the Norwegian Atlas and of which G. Steendal was head. Mr. Steendal announced his severance of all

connections with the Norwegian Atlas and the appointment of Mr. Holst immediately followed. The statement of the Norwegian Atlas as of Dec. 31, 1922 showed United States assets of \$1,391,730 and a surplus of \$893,304. The company was organized in 1915 and was admitted to do business in the United States three years later.

\* \* \*

### Will Wind Up Several Foreign Companies

RECENT advices from London are to the effect that a meeting of creditors of the Danish reinsurance companies, Orion, Nordisk Automobi & Transport, Geae, Cimbri and Sygeog Ulykkes, was held in London. The companies were ordered wound up early this year. The assets of the companies in their own country consist chiefly of uncalled capital, it is stated, and in order to wipe out their liabilities in this connection the Danish stockholders offered the English creditors settlement on a basis of 15 per cent. It is also learned from abroad that the liquidators of the Nordeuropæiske Assurance Selskab, a Danish reinsurance company formed in 1918 have issued a balance sheet showing the position of the company as of July, 1922. The entire capital of the company has been swept away. The company paid a dividend of 10 per cent in July, 1920, and decided to go into liquidation in 1920.

\* \* \*

### Court Puts New Risk in Scuttling Cases

AN EXCEEDINGLY interesting decision has been handed down in England affecting marine underwriters. The ruling, copies of which have been sent by representatives abroad to their home offices, holds that while owners of a vessel who wilfully destroyed their ship can not recover under their insurance from the underwriters, mortgagees, declared innocent parties to the action, are entitled to recover.

The decision is not a pleasing one to marine underwriters, who maintain that fraud should violate an insurance contract. Where fraud occurs insurance companies have always fought to the last ditch and have generally been successful in defeating a claim where any tinge of fraud is discovered. While the case decided in the British court affected others that were in no wise party to the scuttling and stood to lose through no fault of their own in the event that the insurance company was not made to pay, nevertheless, insurance men see in such a decision an increase in moral hazard.

### Levant Business Is Held in Disfavor

MARINE underwriters are scrutinizing with great care all business destined to Greece and the Near East. Turkey has been a sore spot so far as underwriters have been concerned for more than a year and the apprehension is based on the high handed attitude that the Turkish government has taken since its political victory over the allies. The sudden war cloud on the horizon between Italy and Greece is the source of grave concern. At first, it seemed highly probable that rates would be jumped to meet the threatening situation which, it was feared, would lead to seizure, and other war perils.

\* \* \*

### Lumber Drop Brings Heavy Returns

DEPRESSED conditions in the coastwise lumber market is being reflected in marine insurance circles and the underwriters report that they are having to return unusually heavy return premiums while vessels are laid up in the harbor. On comparatively new vessels the underwriters are returning 37½ cents on a basis of 7 per cent for insurance. This means that the underwriters are getting 2½ per cent for harbor risk, which, on a \$180,000 vessel would be a loss of \$8000 per year or a monthly loss of \$675.

### Third Marine Exposition in New York, Nov. 5-10

The third annual marine exposition will be held under the auspices of the American Marine association at the Grand Central Palace, Lexington avenue at Forty-sixth street, New York, Nov. 5-10. This year's exposition is looked forward to with especial interest as a great deal of enthusiasm has been indicated by all of the exhibitors in former shows as well as many new concerns. The diesel engine section will be particularly interesting, as in some instances, actual large size engines up to 22 feet in length, will be exhibited.

Winthrop L. Marvin, vice president and general manager of the American Steamship Owners Association, New York; C. H. M. Jones, of the Todd Shipyards Corp., New York, and William H. Delaney, traffic manager of the Isthmian Steamship lines, New York, were recently elected members of the maritime association of the Boston chamber of commerce.



# What the British Are Doing

Short Surveys of Important Activities in Maritime  
Centers of Island Empire

**S**HIPBUILDING slump and the difficulties attending shipping generally have been aggravated by labor troubles. The dockers at the various ports have at last decided to return to work, their strike having failed to avert the small wage reduction which they resisted against the advice of their own leaders, who considered them bound by the agreement. But it is clear that other troubles are in store, the men having formed a new union, and the transport workers also having decided to force all the dockyard men into the union, by compelling the production of the card of membership. One sequel of the strike will be a legal action to test the payment by boards of guardians of doles to strikers which, it is said, are illegal, and have assisted at the public expense in prolonging the strike.

**T**HE latest shipbuilding returns show that the industry has entirely failed to come up to the optimistic forecast of the beginning of the year that 1923 would show an improvement over last year. The in-

crease in the first quarter was followed in the June quarter by a decrease of tonnage under construction of 154,000 tons and, as compared with 12 months ago, 582,000 tons, with an increase of 30 per cent in the laid-up tonnage. Depressing outlook has reduced share values, and with the exception of Richardsons, Westgarth & Co. who reported record profits for 1922, most shipbuilding companies are at the lowest price level of the year. It is recognized that shipbuilding is being hindered greatly by the high cost of construction, due to inflated steel values directly attributable to the occupation of the Ruhr.

**C**HAMBER of Shipping has made a demand for the reduction of port charges and other terminal costs to which shipping arriving in Australia is subjected, ranging up to 225 per cent above prewar standards. It is pointed out that the cost to a cargo steamer of 11,000 tons, making a stay of five days in port in the United Kingdom is 55 to 62 per cent over 1913; in South Africa 58 per cent; and in Australia 148 per cent. Light dues

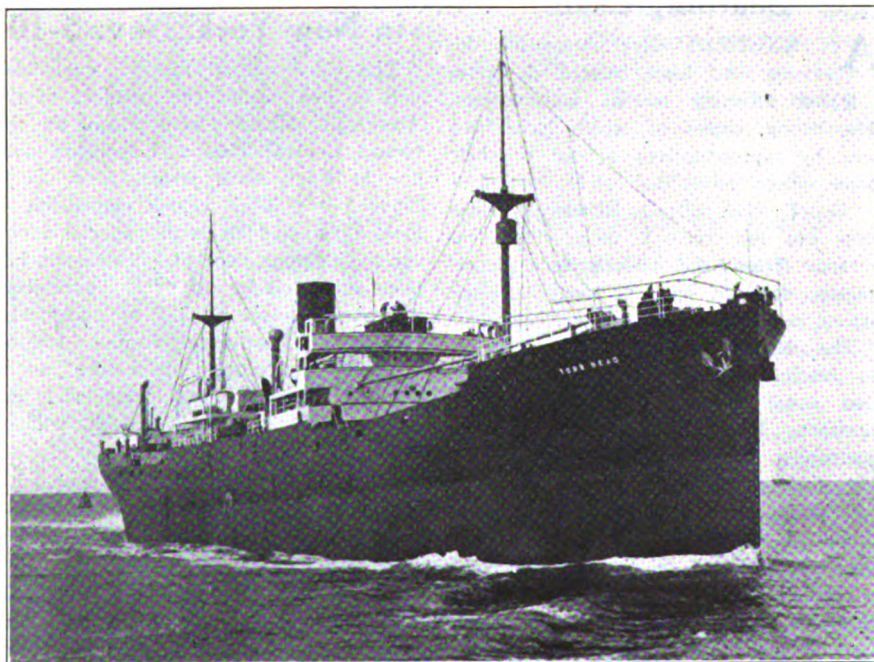
in Australia are 225 per cent above prewar. It is stated that at present shipping services to Australia are running at a loss, the Australian government line itself having made a loss of £2,700,000.

**B**OILERMAKERS' dispute still continues, and is having a disastrous effect on shipbuilding, additional workers being thrown out practically every day. A bitter feeling exists among the other classes of skilled men thus thrown idle, because the boiler-makers refuse to carry out the terms of the agreement accepted by other workers. In a recent letter issued by the Shipbuilding Employers' federation, it is stated, "all the other shipyard trades are observing the full terms of the agreement, whether they are employed on time work or piece work, and if the boiler-makers' position is the same, the dispute could be ended forthwith. The Employers' federation are not prepared to give the boiler-makers' society any differential treatment, which would have the effect of striking a blow at the principle of collective bargaining and the sanctity of agreements constitutionally arranged."

**C**ONSTRUCTION of a new dock at Tilbury in the Port of London has been commenced, intended to accommodate the largest vessel afloat. The new lock is to be 1150 feet in length, 130 feet in breadth and 56 feet deep. Other docks are projected on similar lines at a total cost of £5,000,000.

**F**IRST cruise was undertaken on the Firth of Clyde on Aug. 16 by the Anchor liner CALIFORNIA built by Alexander Stephen & Sons of Lint-house. The work after launching was completed in four months. The CALIFORNIA sailed on her maiden voyage from Glasgow to New York on Aug. 25, and already the luxurious character of the accommodations has met with much appreciation. The complete installation is capable of developing 13,500 shaft horsepower.

At the subsequent luncheon, F. J. Steven, representing the shipbuilding firm, acknowledging compliments, said



NEW SINGLE-SCREW FREIGHTER TORR HEAD

Built at Belfast, this vessel is in the North Atlantic service of the Ulster Steamship Co. She is 400 feet long, 5200 tons gross, has six large cargo holds and is driven by triple expansion engines at 13 knots



the construction of such large ships showed how the trade between Glasgow and America had developed, and how well the Clyde trustees had improved their river. Great advances had taken place within recent years in the construction of vessels, in simplification of designs and in scantlings and in this work the British Corp. Register had taken a leading part.

\* \* \*

**I**MPERIAL resources bureau states that within the last three months an increase of 30 per cent has taken place in the amount of shipping laid up in British ports. Only a small proportion of the idle tonnage can be

held due to the dock strike which had only just begun. A certain proportion, however, is accounted for by the fact that the world's tonnage is some 18 million tons greater than it was in June, 1913.

### Lake Erie Receipts

Total shipments of iron ore from upper lake ports in August were 10,296,133 gross tons and of this 7,942,307 tons was received at Lake Erie ports. This compares with receipts of 7,861,431 tons in July and 7,250,586 tons in June and makes a total of 27,333,644 tons received up to Sept. 1. The

August receipts by ports are as follows:

Port	Gross tons
Buffalo and Port Colborne.....	908,713
Erie .....	251,068
Conneaut .....	1,619,157
Ashtabula .....	1,825,615
Fairport .....	418,588
Cleveland .....	1,676,307
Lorain .....	555,573
Huron .....	206,673
Toledo .....	244,798
Detroit .....	235,815
Total .....	7,942,307

The two motor driven cargo carriers, OCEAN I and II, owned by the Ocean Steamship Co., Liverpool, described in the July issue of MARINE REVIEW, have now been permanently named TANTALUS and MEDON respectively.

## Hoover to Preside at Marine Congress

**B**Y INVITATION of the American Marine association, 15 Park Row, New York, the American Marine congress will convene at the Waldorf Astoria hotel, New York, during the week of Nov. 5 to 10. Herbert Hoover, secretary of commerce, will call the congress to order and act as presiding officer. Representative men of the general public and of all industries and associations affiliated with or affected in any way by shipping will take an active part. Representatives of the merchant marine, shipbuilding, foreign trade, finance, farmers, manufacturers and the general public, will have full opportunity to discuss and to co-ordinate policies leading to the establishment of a strong American merchant marine for the defense, general welfare and prosperity of the country. Particular attention will be devoted to the effect of such a merchant marine on the continuity of employment in the most inland communities. Partisan and controversial questions will be eliminated as far as possible.

Seventy-four national organizations have definitely joined in active participation in the congress. MARINE REVIEW for September carried the names of 55 of these organizations, since which the following 19 additional have indicated their intention to participate.

56. Committee of Manufacturers on standardization of fittings and valves
57. Passaic River Improvement association
58. New York Freight Forwarders & Brokers associations
59. Savannah board of trade.
60. Cincinnati chamber of commerce.
61. City of Camden, N. J.
62. International Association of Machinists

63. City of Wilmington, Del.
64. Portland Steamship Operators Association of Oregon
65. City of Philadelphia
66. City of Trenton, N. J.
67. City of Pittsburgh
68. City of Chester, Pa.
69. Philadelphia chamber of commerce
70. Pacific American Steamship association
71. Commission of Foreign Trade and Port Development of Charleston, S. C.
72. Port Commission of Norfolk, Va.
73. American Institute of Electric Engineers
74. National Council of American Importing and Trading.

The central committee of the marine congress is composed of the leading representatives of the most widely diversified interests, all deeply concerned in the broadest sense in the successful solution of the merchant marine question. This committee is surrounded by a group of 17 specialized committees national in scope, and made up of authorities in each of the several fields. These committees designated as technical committees are already functioning and many of them have made considerable progress in their special lines, such as ports and terminals, standardization, classification and insurance, shipyards, coastwise shipping, manufacturers, diesel engines, steamship owners and operators, inland waterways, Great Lakes shipping, agricultural and public relations.

### Radio Broadcasting Program

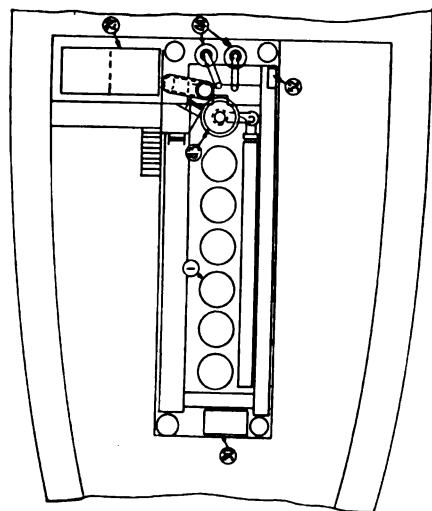
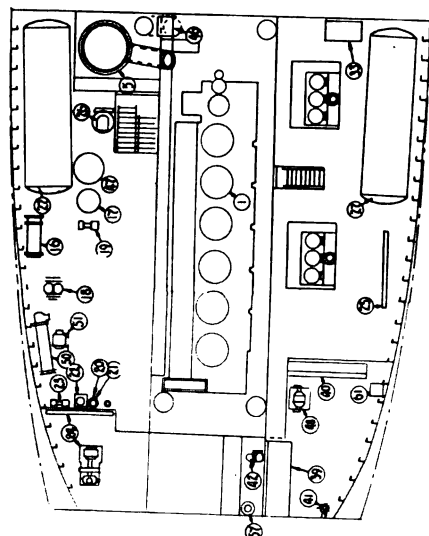
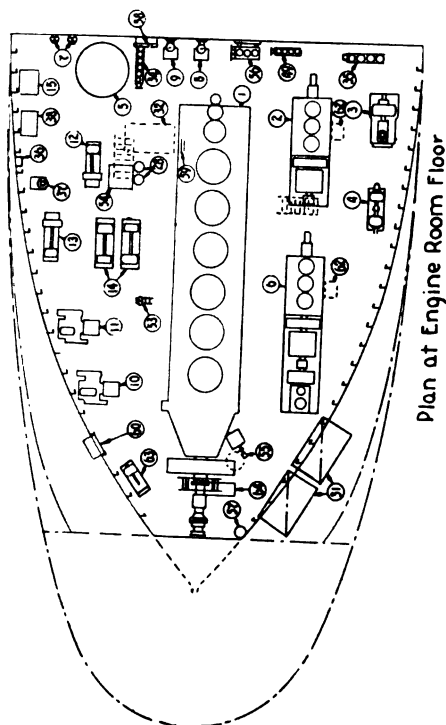
One of the most interesting features of the congress will be the educational campaign which is to be carried directly to 30,000,000 people by means of the radio. A colossal broadcasting scheme is

being worked out in which a large number of radio broadcasting stations in all parts of the country will operate simultaneously in sending out complete information on how the various departments of the federal government function to assist the merchant marine and also how the merchant marine operates to assist the government in times of national emergency. A specific program will be arranged. For instance, there will be a navy night on which prominent naval officers will talk for the radio from each of the stations to be used. In a similar way, there will be an evening for each department concerned such as commerce, army, coast guard, merchant marine, etc. This elaborate program will be arranged for and supervised by a committee of the American Marine congress known as the radio committee, the chairman of which is E. B. Mallory, chairman of the radio apparatus section of the Associated Manufacturers of Electrical Appliances, 165 Broadway, New York City.

Herbert Hoover as a member of this committee will bring into play all of the co-ordinating influences of the radio section of the department of commerce. The object of this radio campaign is to bring about a condition of ship mindedness, greatly needed and sadly lacking throughout the country. It should prove of tremendous value in crystallizing public opinion in regard to the needs of the merchant marine and so bring about a desire on the part of all Americans to co-operate in a determined effort to aid both by the demand for proper legislation and by individual support in formulating an economically sound, strong and definite merchant marine policy based on which with the great resources in men and wealth of this nation a powerful merchant marine is bound to result.



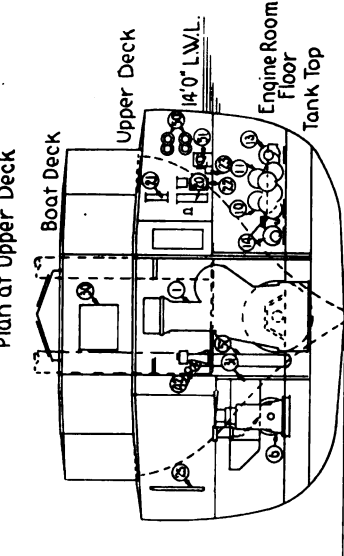
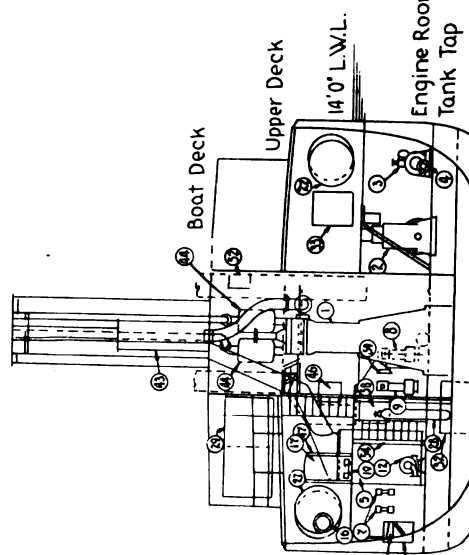
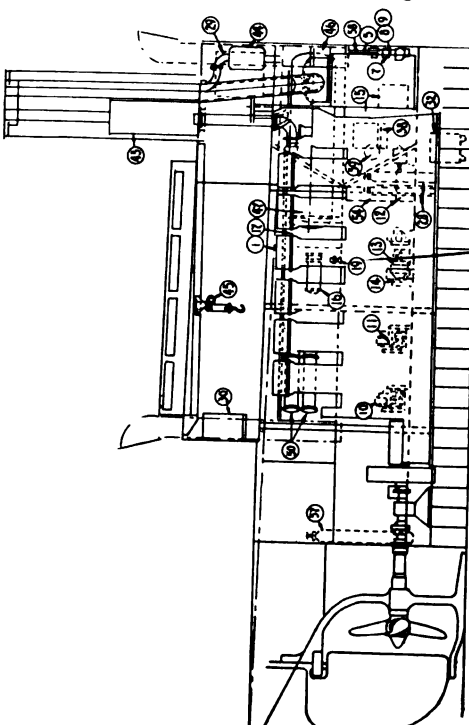
ENGINE ROOM INSTALLATION IN MOTORSHIPS STEELVENDOR AND STEELMOTOR, JUST PLACED IN SERVICE BY THE UNITED STATES STEEL CORP.



Plan at Flat

Plan at Engine Room Floor

Plan at Upper Deck



Elevation Looking to Port Side

Section at Frame No. 20  
LOOKING FORWARD

Section at Frame No. 20  
LOOKING AFT

- 1 Main engine, 750 B. H. P., 135 R. P. M., 4-cycle diesel, 6 cyl., 22 x 32 inches.
- 2 Main generator, 3 cyl., 2 cyc., 60 K. W., 240 volts, D. C., 375 R. P. M.
- 3 Aux. generator, 5 K. W., 115 volts, D. C., 1-cyl., 2-C.
- 4 Motor generator, 7½ K. W., motor 240 V. Gen. 115 volts, D. C.
- 5 Donkey boiler, 355 sq. ft. H. S., 125 pounds W. P.
- 6 Main generator, 3 cyl., 2 cyc., 60 K. W., 240 volts, with attached compressor.
- 7 Donkey boiler feed pump (2), 3 x 2 x 3 inch, V. D., 9 G. P. M.
- 8 Fuel oil transfer pump, 6½ x 7 x 8-inch V. S., 93 G. P. M.
- 9 Bilge and emergency F. O. Trans. pump, ½ x 7 x 8-inch, V. S., 93 G. P. M.
- 10 Fire and bilge pump, 7 x 6-inch, H. D. motor driven, 240 G. P. M. at 100 pounds per square inch.
- 11 Ballast pump, 7 x 6-inch, H. D., motor driven, 240 G. P. M. at 100 pounds per square inch.
- 12 Aux. circulating pump, Cent., motor driven, 150 G. P. M. at 40 pounds per square inch.
- 13 Circulating pump, Cent., motor driven, 400 G. P. M. at 40 pounds per square inch.
- 14 Lub. oil pump (2), 125 gal. each at 40 pounds (rotary).
- 15 Feed and filter tank, 80 gal. storage capacity.
- 16 Condenser two pass., surf., 75 sq. ft. C. S.
- 17 Hot water storage heater, 85 gal. storage capacity.
- 18 Circulating water discharge strainer 5 inches.
- 19 Hot water circ. pump, 3 x 2 x 3 inches, H. D., 9 G. P. M.
- 20 Evaporator, 25 gal. per hour.
- 21 Distilled water tank, 20 gal.
- 22 Distilled water pump, 3 x 2 x 3 inches, H. D., 9 G. P. M.
- 23 Ice machine and condenser, ½ ton, ammonia, motor driven.
- 25 Switchboard.
- 26 Emergency air compressor, 10 cu. ft. per min. at 100 psi.
- 27 Air tank, maneuvering (2), 250 cu. ft., 350 pounds W. P.
- 28 Air flasks, main injection (2), 12-inch dia., 82 inches long, 1000 pounds W. P.
- 29 Fuel oil settling tank, 2 comp., 3 tons each compartment.
- 30 Lub. oil settling tank, 300 gal.
- 31 Lub. oil storage tank, (2), 300 gal. each.
- 32 Lub. oil drain tank, 300 gal.
- 33 Kerosene tank, 200 gal.
- 34 Bilge manifold, 6-3-inch valves.
- 35 High main sea chest.
- 36 Low main sea chest.
- 37 Log desk.
- 38 Work bench with vise.
- 39 Huns.
- 40 Hand drill.
- 41 Separator (lub. oil), 30-120 gal. per hr.
- 43 Silencer for main engine.
- 44 Silencer for generating sets (2).
- 45 Trolley chain hoist (3 tons).
- 46 Inspection tank, 38 gal. working capacity, at 125 pounds.
- 47 Air tank for whistle, capacity 30 cu. ft., max., 240 volts, D. C.
- 48 Motor driven grinder, 3 H. P., 220 volts, D. C.
- 49 Ballast manifold, (swing suet.), 4-3-inch valves.
- 50 Lub. oil coolers (2), 160 G. P. M.
- 51 Lub. oil duplex strainer, 3½ inches.
- 52 Lub. oil gravity tank, 33 gal. capacity.
- 53 Lub. oil transfer pump, 3 x 2 x 3-inch, V. D., 9 G. P. M.
- 54 Telephone booth.
- 55 Turbine engine.
- 56 Fuel oil cock manifold.
- 57 Reserve injection air flask, 15¼-inch dia. x 120 inches long.
- 58 Gage board.
- 59 Mechanical telegraph.
- 60 Engine room oil tank, 2 compartment, 30 gal. capacity each.
- 61 Waste tank, 5 cu. ft.
- 62 Generator lub. oil drain tanks (2), 30 gal. capacity.
- 63 Lub. oil drain pump, 40 G. P. M. at 20 pounds per sq. in. (rotary).
- 64 Atm. lub. oil drain tank, 40 gal.



# Puts Motorships in Lake Trade

Steel Corporation Places Two Diesel Driven Freighters in Great Lakes-St. Lawrence Route—On Ocean in Winter

**D**URING 1922, the United States Steel Products Co., New York, a subsidiary of the United States Steel Corp. began negotiations for building two ships of unusual characteristics and which would be a marked departure from the usual large steam-driven freighters. In the first place, planning these vessels as Great Lakes, St. Lawrence and ocean freighters, definitely limited the size to permit of passage through the Welland and St. Lawrence canals connecting the Great Lakes with the

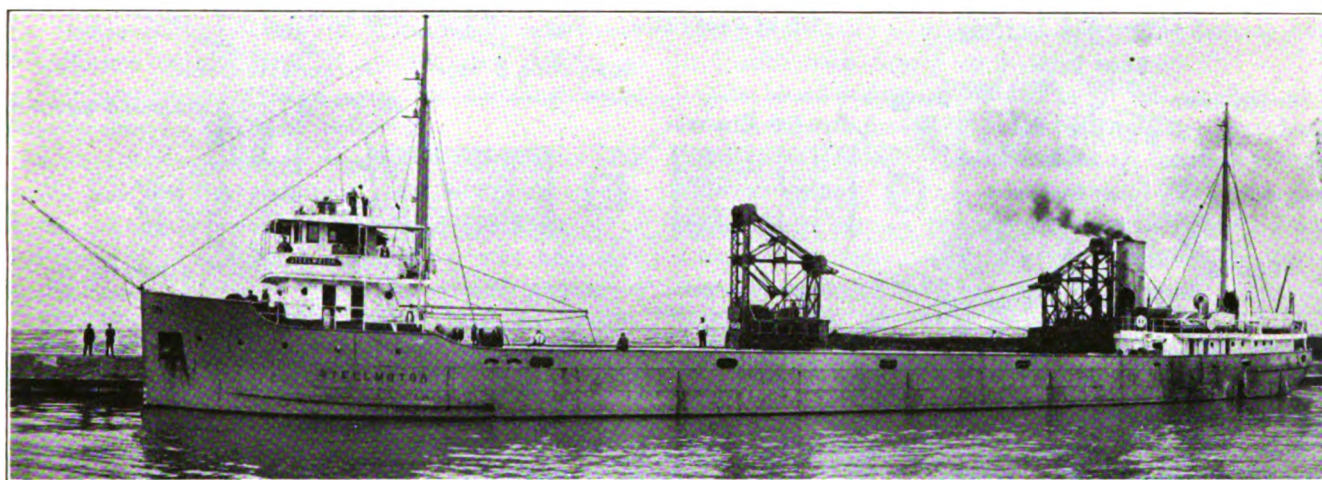
the character of machinery layouts. The principal dimensions are:

Length overall, ft., ins. ....	258 3
Length, B.P., ft., ins. ....	250 0
Breadth molded, ft., ins. ....	42 9
Depth molded to upper deck, ft., ins. ....	20 0
Load draft-canal service, ft., in. ..	14 0
Load draft-coastwise service, ft., in.	16 0
Estimated deadweight, 14-foot draft, F.W., tons .....	2100
Estimated speed on 14-foot draft, knots .....	9

handling of cargo. Instead of the usual winches, each hatch is served by a 5-ton three-motor, variable radius, fixed base revolving crane, of Brown Hoist manufacture.

## Auxiliaries Are Complete

Two diesel engines developing 90 horsepower at 375 revolutions per minute connected to 60-kilowatt generators, furnish the electric power for the deck machinery and motor-driven engine room auxiliaries. One of these generators is con-



DIESEL DRIVEN FREIGHTER STEELMOTOR NOW TRADING BETWEEN GREAT LAKES AND ST. LAWRENCE RIVER PORTS. IN WINTER, SHE WILL RUN ON THE ATLANTIC

Atlantic ocean. In the second place, the motive power decided upon was the direct diesel drive.

Proposed plans, specifications and bids were submitted to the United States Steel Products Co. by the Federal Shipbuilding Co., Kearney, N. J. The contract was finally awarded October, 1922, to the Federal Shipbuilding Co. for building two such freighters. Keels were laid in January and February, 1923. The vessels were launched in May and June and were christened respectively, the STEELMOTOR and the STEELVENDOR and were completed and delivered shortly thereafter. These two motorships are now in commission on the Great Lakes under the flag of the Isthmian Steamship line, the operating company of the United States Steel Products Co.

## Description and General Dimensions

The vessels have been built to the American Bureau of Shipping classification A1E and meet all the requirements both for coastwise and lake service. The accompanying drawings and photograph clearly indicate the type and

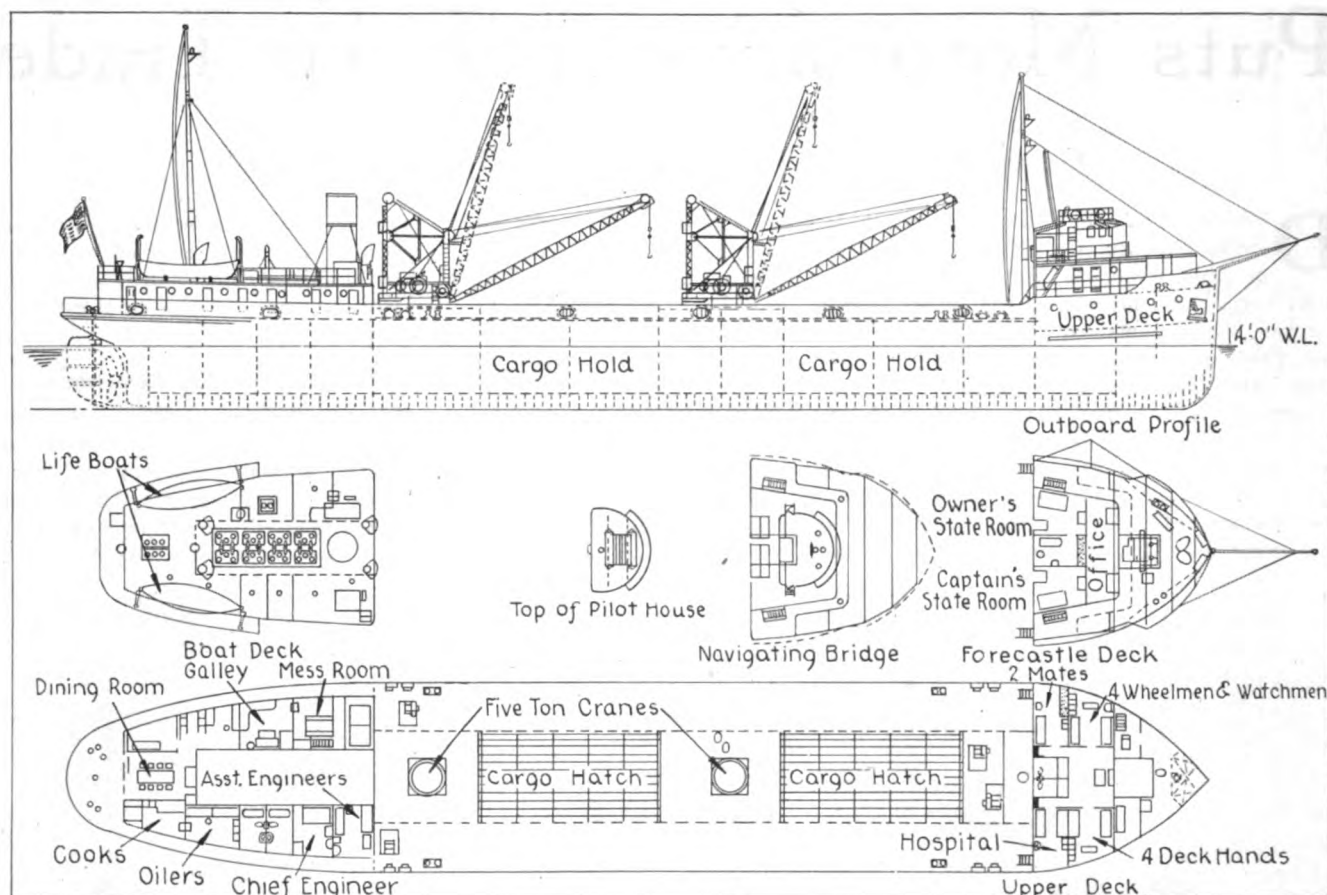
The main engine is a McIntosh & Seymour 4-cycle, 6-cylinder diesel, direct-connected to the propeller shaft. It is located aft. The cylinders are 22 x 32 inches. The engine is direct reversible. The brake horsepower is 750 at 135 revolutions per minute.

Further characteristics are, a single deck, raised forecastle, straight stem and elliptical stern with hull built on the transverse system of framing and with a complete double bottom from peak to peak in which is carried fuel oil and ballast. Four watertight bulkheads are provided and the deck is trunked. An interesting and unusual feature is the elimination of all obstructions such as pillars in the two cargo holds, the lack of pillars being compensated for by three deep web frames in each hold. The bilge brackets in the cargo holds are protected from drainage by double bottom ceiling and the double bottom plating is all flush with seam straps. Each hold has an exceptionally large hatch for a vessel of this size, being 20 x 40 feet. Another radical departure has been inaugurated to facilitate the rapid

connected with the auxiliary air compressor through a magnetic clutch. A 5-kilowatt auxiliary generator furnishes current for lighting purposes while the vessel is in port and the main generators are shut down. A small steam driven emergency compressor is provided for starting.

The deck machinery, consisting of one steering engine, two 5-ton revolving cranes, four warping winches and one windlass is all electrically driven. An electric-driven ice machine is used for the refrigerating space. The main pumps, two horizontal duplex geared, fire bilge and ballast pumps, one main and one auxiliary centrifugal circulating pump and two rotary lubricating pumps are all electric motor driven. All of these pumps except the lubricating oil pumps are connected to the ballast system so that the vessel can be ballasted in a short time. The lubricating oil pumps are of large capacity to handle piston cooling of the main engine by lubricating oil. The remaining pumps are of the piston type and all of them are operated by either steam or compressed air.





GENERAL ARRANGEMENT OF TWO DIESEL DRIVEN FREIGHTERS BUILT BY THE UNITED STATES STEEL CORP. TO OBTAIN CHEAPER AND MORE CERTAIN DELIVERY OF ITS FINISHED PRODUCTS

An oil-fired donkey boiler about 4 feet 6 inches in diameter and 6 feet high with working pressure of 25 pounds per square inch and heating surface of about 100 feet is provided to furnish heat and hot water for quarters. A suitable smoke stack is provided in which is carried the donkey boiler stack and independent diesel engine exhaust pipes. All necessary apparatus such as air tanks, lubricating oil coolers and workshop tools, is supplied to complete the machinery installation in detail according to latest developments and practice as applied to motor vessels.

Quarters for the deck crew are located in the forecastle. The captain and owner have staterooms in the forward deck house. Rooms are provided in the deck house aft on the upper deck for the chief engineer, assistants and engine room crew and steward's department.

#### Trade Route Is Unusual

The STEELMOTOR and STEELVENDOR have been built to such dimensions that they do not need to be landlocked during the winter months. In other words, they are designed so that they can be used on the Great Lakes and the St. Lawrence during the summer while at the end of the lake season in the fall before ice forms, they can come through the canal and the St. Lawrence for operation in the

coastwise trade during the winter. The crew list is about 19, made up as follows: Captain, two mates, four wheelmen and watchmen, four deckhands, chief engineer, two assistant engineers, three oilers and two cooks.

Two cargoes of about 1800 tons can be accepted alongside and delivered alongside reckoning an average cost of 75 cents per ton for each loading and discharge, after moving a distance of 1500 nautical miles, at a total net cost of approximately \$10,200. Adding to this net cost of operation, charges for depreciation at 5 per cent and interest at 6 per cent on a valuation of \$175,000, a total gross cost of \$11,800 is obtained which is equal to \$3.28 per ton. This is, of course, only a rough estimate based on assumptions but is intended to give a line on the approximate operation costs.

Deliveries of cargoes of finished steel from lake ports to ports on the St. Lawrence or even to Portland, Me., and Boston could undoubtedly be done cheaper by this mode of transportation than by rail. This size of vessel will not, of course, move the bulk cargoes of ore and grain between lake ports as cheaply as the much larger lake vessels used. They are at present carrying steel products from lake ports to Canadian ports such as Montreal. For

return cargoes, they have carried wood pulp or news print from such points as Three Rivers, near Quebec.

If these vessels prove their worth in the proposed combination of summer service on the lakes and the St. Lawrence and coastwise during the winter, the type will be improved and an additional fleet of diesel-driven ships along these lines is sure to result.

#### Lake Michigan Receipts

Ports on Lake Michigan received 2,083,943 tons of iron ore in August, compared with 1,929,660 tons in July and 1,922,680 tons in June. The total to Sept. 1 is 7,120,273 tons. The August receipts by ports follow:

Port	Gross tons
South Chicago, Ill.	1,198,087
East Jordan, Mich.	.....
Boyne City, Mich.	.....
Milwaukee	30,269
Indiana Harbor, Ind.	261,345
Gary, Ind.	594,242
Total	2,083,943

E. Sevilla & Son, agents for the Pimilos line, announced that effective with the arrival of the Spanish steamer, BARCELONA on Aug. 20, Houston, Tex., was to be one of the ports of lading of that line. Its ships will call at Houston for cargo destined to Spanish ports.

# Editorial

## Winning Cargoes for U. S. Ships Will Do More Than Subsidy

**P**OLITICS can live only as long as it provides jobs for politicians. If one keeps himself firmly anchored to that simple fact, a clearer understanding is possible of the many moves and countermoves which baffle the onlooker of government procedure.

The much accused and rarely defended shipping board is an interesting specimen to watch as it demonstrates what politics are for, but it is a saddening spectacle to any one who has the best interests of American shipping at heart. Probably the board members would resent the label of politician which has won a stigma in the minds of the great majority of citizens. But few exist very long in Washington and resist the influence of that city of concentrated politics so that, unconsciously perhaps, even the shipping board members may be becoming politicians.

To an outside spectator of average intelligence, the board's job for the past few years has been clearly cut out. Congress which passes laws that most of us must observe, laid down a rule that it was necessary for the United States to "have a merchant marine of the best equipped and most suitable types of vessels, ultimately to be owned and operated privately by citizens of the United States." The national policy was declared to be that whatever was necessary to accomplish that purpose would be done. So the shipping board was directed by congress to "keep always in view this purpose and object as the primary end to be attained."

### *Board Likes Its Job*

Congressional language could hardly have been made more specific and most of us with such a formidable law pointed directly at us would have tried to sell the ships to private owners before we could have enjoyed our meals. But although some government officials inspire a week's services to win back knowledge and respect for the constitution, others read a law and then go out and do as they please.

It is difficult to get any idea other than that the shipping board would prefer to run its present fleet of ships itself. Perhaps the board members think with natural confidence that they can do it better than any one else. Such an attitude of downright government operation would be understandable. But whatever they think, the board from its very organization has been doing lip service to private ownership. Applause greets every declaration that government operation is impossible, is inefficient, is the last thing in the world to be considered. Declarations by shipping board members in the last six or seven years are practically 100 per cent in favor of private ownership and of the government getting out of business. But the actions by which

those declarations are to be put into practice, have steadily tended the other way.

Some employees have been discharged and some ships have been sold but by and large, the combined post-war efforts have done little or nothing to relieve the country from the heavy strain of supporting the board and its large organization. The board did fight for a subsidy but they were led by a President who believed in that measure and was sincerely desirous of closing out the board's property as quickly as possible. Disheartened by that defeat, he apparently was willing to listen to the present plan of Mr. Lasker's, which Chairman Farley is supporting, of riveting federal control still more firmly on to the industry.

The board's sincerity in trying to sell its fleet may be gaged by its first public offer when 75 per cent down payment was asked. Then it fastens an ironclad restriction compelling the use of ships sold in a specified trade for a certain period of years. Private owners advanced a solution which the board received on Monday and turned down in a reply on Tuesday. The operators's plan got little attention. Public sentiment brought about an open meeting of the board with the owners and operators, but a chill air of antagonism surrounded the board rather than any atmosphere of cordially desiring to act as a "prudent, business man" as congress commanded and sell the fleet as "soon as practicable."

### *Cargoes and Sales Are Better Than Talk*

If the board members are sincerely anxious to solve the question, the country would enjoy hearing of more ships being sold. Take the ten big liners which have been building up American prestige on the Pacific. Months have dragged along since the board got offers from two responsible companies, one offer for the ten, and one for five. The negotiations are always going to be closed some weeks away.

Senator Pomerene of Ohio has been far sighted in urging a plan of legislation which would make it profitable for American firms to employ American ships. Subsidy is now, of course, hopeless. What greater service could the board render than to try and advance a legislative or executive plan which would bring cargoes to American ships. Congress will more quickly support that plan than a subsidy which resembles payment after a loss. If the board will spend its time on some constructive work of that kind, will quit discouraging marine investments by talking of how impossible it is for private owners to run the ships, and will actually sell ships rather than talk about it, this expensive and humiliating national marine problem, may be answered.



# Marine Business Statistics Condensed

## Record of Traffic at Principal American Ports for Past Year

### New York

(Exclusive of Domestic)

Month	Entrances		Clearances	
	No. ships	Net tonnage	No. ships	Net tonnage
August, 1923...	468	1,855,045	520	2,039,732
July .....	462	1,799,886	490	1,962,302
June .....	466	1,799,908	518	2,075,654
May .....	500	1,849,548	501	1,874,019
April .....	469	1,818,531	467	1,788,555
March .....	477	1,764,093	494	1,857,212
February .....	395	1,437,919	413	1,529,096
January .....	423	1,679,843	439	1,690,010
December, 1922..	397	1,569,778	473	1,819,341
November .....	426	1,626,068	463	1,805,798
October .....	452	1,846,327	467	1,848,637
September .....	519	1,985,981	542	2,104,884
August .....	515	1,772,837	508	1,865,798

### Philadelphia

(Including Chester, Wilmington and the whole Philadelphia port district)  
(Exclusive of Domestic)

Month	Entrances		Clearances	
	No. ships	Net tonnage	No. ships	Net tonnage
August, 1923...	97	251,295	73	180,771
July .....	109	269,158	77	177,700
June .....	102	257,507	69	191,633
May .....	105	267,441	82	207,209
April .....	87	218,177	83	229,333
March .....	111	306,580	76	209,261
February .....	67	160,678	54	139,701
January .....	98	287,240	64	182,402
December, 1922..	78	209,962	63	167,736
November .....	75	221,130	78	241,326
October .....	80	205,137	73	202,326
September .....	103	261,963	74	224,079
August .....	104	273,123	76	222,478

### Boston

(Exclusive of Domestic)

Month	Entrances		Clearances	
	No. ships	Net tonnage	No. ships	Net tonnage
August, 1923...	126	302,391	86	178,706
July .....	146	337,033	85	174,106
June .....	176	319,135	128	176,853
May .....	159	328,183	108	176,845
April .....	106	328,372	67	197,510
March .....	106	330,766	51	139,776
February .....	102	323,880	48	128,949
January .....	148	429,849	61	160,090
December, 1922..	138	383,366	61	181,975
November .....	130	357,264	59	123,255
October .....	149	408,855	91	217,899
September .....	193	511,027	101	248,328
August .....	192	449,871	116	203,774

### Portland, Me.

(Exclusive of Domestic)

Month	Entrances		Clearances	
	No. ships	Net tonnage	No. ships	Net tonnage
August, 1923...	11	24,155	8	18,838
July .....	8	18,148	9	17,770
June .....	7	22,613	8	25,941
May .....	8	16,470	11	17,781
April .....	22	75,012	29	100,274
March .....	29	94,128	31	83,391
February .....	33	91,190	36	100,312
January .....	49	144,429	42	126,949
December, 1922..	48	144,019	48	136,247
November .....	22	45,567	21	46,755
October .....	27	60,114	22	49,594
September .....	32	68,125	27	57,609
August .....	28	42,746	28	47,459

### Providence

(Exclusive of Domestic)

Month	Entrances		Clearances	
	No. ships	Net tonnage	No. ships	Net tonnage
July, 1923.....	10	25,155	7	29,316
June .....	7	25,466	5	17,238
May .....	9	31,731	8	38,870
April .....	10	33,783	12	41,352
March .....	8	31,910	8	34,367
February .....	17	56,353	10	39,840
January .....	13	45,175	12	52,651
December, 1922..	6	23,609	8	29,871
November .....	11	47,565	10	31,470
October .....	9	31,293	9	31,232
September .....	30	84,037	13	40,223
August .....	18	61,741	11	38,649
July .....	10	19,279	7	22,228

### Baltimore

(Exclusive of Domestic)

Month	Entrances		Clearances	
	No. ships	Net tonnage	No. ships	Net tonnage
August, 1923...	100	303,073	92	262,306
July .....	130	390,465	137	395,206
June .....	140	407,872	135	406,138
May .....	156	476,041	160	468,248
April .....	159	470,698	138	416,969
March .....	123	375,762	117	354,803
February .....	80	240,133	94	275,291
January .....	115	322,661	110	306,393
December, 1922..	110	322,948	104	380,616
November .....	114	361,162	132	403,593
October .....	97	289,239	101	304,431
September .....	107	333,387	112	298,444
August .....	110	326,163	106	300,080

### Norfolk and Newport News

(Exclusive of Domestic)

Month	Entrances		Clearances	
	No. ships	Net tonnage	No. ships	Net tonnage
August, 1923...	36	113,070	81	244,366
July .....	41	108,465	108	296,197
June .....	36	107,218	66	190,218
May .....	62	188,850	93	286,420
April .....	21	65,350	73	212,453
March .....	16	51,333	71	200,858
February .....	8	24,958	42	130,121
January .....	14	41,127	44	121,152
December, 1922..	19	52,716	40	137,081
November .....	6	21,036	38	118,738
October .....	17	44,423	46	149,670
September .....	5	22,051	45	132,751
August .....	15	43,887	51	158,879

### Savannah

(Exclusive of Domestic)

Month	Entrances		Clearances	
	No. ships	Net tonnage	No. ships	Net tonnage
August, 1923...	18	55,205	20	59,452
July .....	18	53,071	22	60,711
June .....	27	77,392	31	90,636
May .....	26	67,494	23	63,395
April .....	26	81,582	27	83,365
March .....	31	95,905	30	89,323
February .....	31	87,315	31	87,703
January .....	28	93,564	28	93,587
December, 1922..	22	66,619	17	57,279
November .....	14	41,665	15	40,606
October .....	19	52,065	19	46,054
September .....	26	68,878	26	73,540
August .....	22	63,662	22	59,974

### Key West

(Exclusive of Domestic)

Month	Entrances		Clearances	
	No. ships	Net tonnage	No. ships	Net tonnage
August, 1923...	80	94,591	82	93,028
July .....	88	96,514	86	97,260
June .....	93	105,045	93	102,123
May .....	97	102,033	95	101,422
April .....	84	85,964	83	88,475
March .....	91	88,639	90	83,220
February .....	69	68,735	64	68,658
January .....	89	81,622	86	79,210
December, 1922..	74	77,623	78	85,839
November .....	69	71,740	70	71,705
October .....	61	67,755	64	77,225
September .....	57	64,645	59	62,676
August .....	65	69,962	61	65,883

### Portland, Oreg.

(Exclusive of Domestic)

Month	Entrances		Clearances	
	No. ships	Net tonnage	No. ships	Net tonnage
August, 1923...	17	64,218	31	106,478
July .....	19	66,048	24	86,474
June .....	22	87,147	25	87,419
May .....	16	58,889	21	72,663
April .....	17	62,287	22	84,940
March .....	16	69,514	22	78,124
February .....	13	46,219	18	66,446
January .....	12	47,848	25	97,674
December, 1922..	13	46,245	31	104,065
November .....	18	63,016	32	106,367
October .....	24	91,306	26	103,602
September .....	27	106,768	36	129,215
August .....	20	77,251	23	86,510

### New Orleans

(Exclusive of Domestic)

Month	Entrances		Clearances	
	No. ships	Net tonnage	No. ships	Net tonnage
August, 1923...	235	605,671	249	639,802
July .....	237	602,017	227	587,966
June .....	230	584,271	226	572,211
May .....	221	550,817	237	603,128
April .....	234	612,572	237	623,539
March .....	253	648,990	269	682,080
February .....	204	559,638	206	539,965
January .....	242	713,589	233	695,524
December, 1922..	211	543,884	222	573,111
November .....	220	598,306	219	599,150
October .....	239	630,306	235	625,605
September .....	212	555,017	223	571,299
August .....	249	625,819	230	629,150

### Galveston

(Exclusive of Domestic)

Month	Entrances		Clearances	
	No. ships	Net tonnage	No. ships	Net tonnage
August, 1923...	69	172,330	92	257,371
July .....	70	178,601	77	198,200
June .....	77	178,013	82	209,893
May .....	78	181,759	97	256,745
April .....	65	162,317	77	209,388
March .....	58	170,841	97	287,278
February .....	48	146,944	76	233,591
January .....	69	219,967	79	282,889
December, 1922..	64	214,952	79	260,159
November .....	56	174,964	87	304,352
October .....	59	156,587	85	260,702
September .....	48	144,403	56	187,724
August .....	59	180,814	63	203,194

### Port Arthur, Tex.

(Exclusive of Domestic)

Month	Entrances		Clearances	
	No. ships	Net tonnage	No. ships	Net tonnage
August, 1923...	45	122,018	56	156,908
July .....	36	107,997	49	122,785
June .....	52	161,207	57	174,651
May .....	59	187,057	64	206,089
April .....	58	191,158	56	188,376
March .....	64	188,176	55	169,005
February .....	52	172,273	44	142,554
December, 1922..	59	210,778	65	218,274
November .....	42	143,551	47	154,010
October .....	68	227,039	66	217,502
September .....	53	158,181	57	168,681
August .....	69	227,941	70	224,654

### Mobile

(Exclusive of Domestic)

Month	Entrances		Clearances	
	No. ships	Net tonnage	No. ships	Net tonnage
August, 1923...	64	191,968	67	146,191
July .....	73	136,242	66	123,405
June .....	64	136,311	61	132,863
May .....	74	167,509	74	174,851
April .....	85	199,871	82	163,074
March .....	88	203,032	88	206,285
February .....	83	186,479	72	160,777
January .....	77	145,151	67	153,001
December, 1922..	66	123,746	56	119,821
November .....	68	147,775	53	130,769
October .....	59	143,207	52	110,398
September .....	66	121,037	51	85,801
August .....	60	112,431	65	137,552

### Houston

(Exclusive of Domestic)

Month	Entrances		Clearances	
	No. ships	Net tonnage	No. ships	Net tonnage
August, 1923.....	58	43,258	56	211,348
July .....	48	42,447	48	177,665
June .....	49	72,875	50	197,081
May .....	54	60,640	50	182,691
April .....	47	72,722	55	119,521
March .....	54	69,428	51	135,906
February .....	49	50,379	48	167,872
January .....	49	36,744	52	146,532
December, 1922..	58	70,948	53	195,322
November .....	65	72,192	63	215,043
October .....	55	57,106	53	168,254
September .....	43	46,600	43	97,005
August .....	35	40,503	32	63,281

# Marine Business Statistics Condensed

## Port Traffic Record

### San Francisco

(Exclusive of Domestic)

Month	Entrances		Clearances	
	No. ships	Net tonnage	No. ships	Net tonnage
August, 1923....	64	208,625	65	224,918
July .....	68	244,530	58	189,348
June .....	59	204,204	65	227,566
May .....	64	230,778	69	244,321
April .....	61	199,831	63	227,467
March .....	50	168,399	71	237,195
February .....	47	165,333	60	214,686
January .....	51	156,249	65	216,083
December, 1922..	54	187,648	68	234,385
November .....	42	154,024	42	154,280
October .....	59	159,855	69	261,687
September .....	52	163,697	65	233,079
August .....	65	221,288	68	219,326

### Los Angeles

(Exclusive of Domestic)

Month	Entrances		Clearances	
	No. ships	Net tonnage	No. ships	Net tonnage
August, 1923..	80	193,400	63	161,380
July .....	78	265,294	56	187,987
June .....	87	212,483	53	175,799
May .....	78	246,275	53	179,360
April .....	87	269,264	72	165,302
March .....	115	251,459	90	185,155
February .....	86	148,957	83	137,564
January .....	91	153,564	92	141,332
December, 1922..	133	132,114	76	83,537
November .....	110	111,803	111	112,934
October .....	117	115,548	138	94,522
September .....	61	127,969	96	133,561
August .....	52	143,931	43	117,758

### Seattle

(Exclusive of Domestic)

Month	Entrances		Clearances	
	No. ships	Net tonnage	No. ships	Net tonnage
August, 1923..	39	173,885	37	163,188
July .....	30	148,607	32	149,239
June .....	36	147,186	39	184,732
May .....	29	133,752	37	159,393
April .....	32	141,569	31	133,950
March .....	28	129,070	30	138,428
February .....	26	120,548	39	156,258
January .....	27	125,551	36	155,129
(Inclusive of Domestic)				
December, 1922..	201	560,159	198	564,367
November .....	138	374,871	139	374,871
October .....	164	417,901	148	406,498
September .....	159	375,340	159	382,079
August .....	162	396,363	153	387,908

## Soo Canal Report

Led by an iron ore movement of more than 10,000,000 tons, the traffic through the Soo canals in August was the heaviest on record for that period of the year. The total of 14,353,044 net tons finds its closest competitor in August 1917 when the total was about 386,000 tons smaller. The August record for the last seven years is:

	Net tons
August, 1923 .....	14,353,044
August, 1922 .....	10,285,914
August, 1921 .....	7,497,876
August, 1920 .....	12,425,290
August, 1919 .....	6,609,961
August, 1918 .....	12,789,801
August, 1917 .....	13,967,108

Of last month's total, the American canal contributed 14,087,010 net tons and the Canadian canal 266,034 net tons. The following table shows the 1923 commerce through the Soo canal, divided by commodities, up to Sept. 1:

### EASTBOUND

	Net tons
Lumber, M. ft. B. M. ....	130,900
Flour, barrels .....	4,833,880
Wheat, bushels .....	87,765,100

Grain, bushels .....	37,881,887
Copper, net tons .....	32,026
Iron ore, net tons .....	35,883,001
Pig iron, net tons .....	11,359
Stone, net tons .....	9,800
General merchandise, net tons .....	25,175
Passengers, number .....	23,223

Salt, net tons .....	44,869
Oil, net tons .....	111,099
Stone, net tons .....	460,788
General merchandise, net tons .....	314,013
Passengers, number .....	24,176

### SUMMARY

WESTBOUND	
Coal, soft, net tons .....	10,701,028
Coal, hard, net tons .....	1,124,245
Iron ore, net tons .....	131,551
Manufactured iron and steel, net tons .....	52,389

Vessel passages, number .....	12,379
Registered tonnage, net .....	39,132,079
Freight:	
Eastbound, net tons .....	40,197,168
Westbound, net tons .....	12,939,982
Total freight, net tons .....	53,137,150

## Record of Traffic Through Panama Canal

		Atlantic to Pacific traffic			Pacific to Atlantic traffic			Total traffic through canal		
		Panama Canal			Panama Canal			Panama Canal		
		No. of ships	Net tonnage	Tons of cargo	No. of ships	Net tonnage	Tons of cargo	No. of ships	Net tonnage	Tons of cargo
1923										
July	American	146	743,072	361,335	139	751,940	1,194,357	285	1,495,012	1,555,692
	Foreign	109	464,386	328,697	80	350,629	453,395	189	815,015	782,092
	Totals	255	1,207,458	690,032	219	1,102,569	1,647,752	474	2,310,027	2,337,784
June	American	131	705,481	385,843	115	607,950	1,022,421	246	1,313,431	1,408,264
	Foreign	96	405,816	270,146	75	316,655	418,036	171	722,471	688,182
	Totals	227	1,111,297	655,989	190	924,605	1,440,457	427	2,035,902	2,096,446
May	American	133	715,061	406,699	120	651,504	1,096,175	253	1,366,565	1,502,874
	Foreign	96	405,816	335,652	70	337,249	426,557	166	761,849	762,209
	Totals	229	1,139,661	742,351	190	988,753	1,522,732	419	2,128,414	2,265,083
April	American	123	662,300	331,114	116	637,178	1,041,481	239	1,299,478	1,372,595
	Foreign	81	360,318	322,255	84	347,894	492,295	165	708,212	814,550
	Totals	204	1,022,618	653,369	200	985,072	1,533,776	404	2,007,690	2,187,145
March	American	119	635,992	348,598	96	509,443	819,204	215	1,145,435	1,167,802
	Foreign	114	505,290	329,890	80	337,467	443,236	194	842,757	773,126
	Totals	233	1,141,282	678,488	176	846,910	1,262,440	409	1,988,192	1,940,928
February	American	97	486,186	325,835	82	422,871	633,458	179	908,673	959,293
	Foreign	78	354,190	237,604	69	266,300	366,381	147	620,874	603,985
	Total	175	840,376	563,439	151	689,171	999,839	326	1,529,547	1,563,276
January	American	88	450,254	313,094	67	320,300	462,245	155	770,554	775,339
	Foreign	106	473,524	285,649	91	366,614	530,944	197	840,138	816,593
	Total	194	923,778	598,743	158	686,914	993,189	352	1,610,692	1,591,932
1922										
December	American	78	363,857	328,924	68	344,847	551,907	146	710,704	880,831
	Foreign	83	352,020	231,494	75	312,539	422,777	158	664,559	654,271
	Total	161	717,877	560,418	143	657,386	974,684	304	1,375,263	1,535,102
November	American	65	324,783	234,500	55	273,293	416,515	120	598,076	651,015
	Foreign	83	370,180	266,878	91	369,024	508,967	174	739,204	775,845
	Total	148	694,963	501,378	146	642,317	925,482	294	1,337,280	1,426,860
October	American	70	328,229	264,171	51	250,606	385,196	121	578,835	649,367
	Foreign	89	384,223	300,904	84	347,334	495,592	173	731,557	796,496
	Total	159	712,452	565,075	135	597,940	880,788	294	1,310,392	1,445,863
September	American	54	260,249	226,741	53	235,008	315,898	107	495,257	542,639
	Foreign	72	322,167	241,095	61	252,986	354,454	133	575,153	595,549
	Total	126	582,416	467,836	114	487,994	670,352	240	1,070,410	1,138,188
August	American	58	261,613	257,674	48	236,669	305,838	106	498,282	563,512
	Foreign	83	350,249	299,087	68	235,602	303,351	151	585,851	602,438
	Total	141	611,862	556,761	116	472,271	609,189	257	1,084,133	1,165,950
July	American	52	250,378	246,471	55	272,868	335,154	107	523,246	581,625
	Foreign	76	323,853	295,941	68	280,772	333,534	144	604,625	629,475
	Total	128	574,231	542,412	123	553,640	668,688	251	1,127,871	1,211,100
June	American	57	256,060	269,098	45	205,063	211,373	102	461,123	480,466
	Foreign	78	338,136	317,284	48	171,454	179,728	126	509,590	497,012
	Total	135	594,196	586,377	93	376,517	391,101	228	970,713	977,478
Vessels in Ballast										
1923										
July	American	76	443,654	0	4	12,848	0	80	456,502	0
	Foreign	25	107,103	0	3	9,580	0	25	116,683	0
	Totals	101	550,757	0	7	22,428	0	105	573,185	0
June	American	70	422,173	9	0	0	0	70	422,173	9
	Foreign	27	118,540	0	2	7,255	0	29	125,795	0
	Totals	97	540,713	9	2	7,255	0	99	547,968	9
May	American	72	422,947	0	3	10,658	0	75	433,605	0
	Foreign	23	87,784	0	2	4,750	0	25	92,534	0
	Totals	95	510,731	0	5	15,408	0	100	526,139	0
April	American	67	393,895	0	3	18,837	0	70	412,735	0
	Foreign	11	44,214	0	2	9,412	0	13	53,626	0
	Totals	78	438,109	0	5	28,249	0	83	466,368	0
March	American	60	359,006	0	4	7,841	0	64	366,847	0
	Foreign	35	144,223	0	3	9,915	0	38	154,138	0
	Totals	95	503,229	0	7	17,756	0	102	520,985	0
February	American	36	229,578	0	0	0	0	36	229,578	0
	Foreign	24	105,848	0	3	7,486	0	27	113,334	0
	Total	60	335,426	0	3	7,486	0	63	342,912	0
January	American	29	181,617	0	2	10,141	0	31	191,758	0
	Foreign	26	109,586	0	1	4,942	0	27	114,528	0
	Total	55	291,203	0	3	15,083	0	58	306,286	0



# Late Flashes On Marine Disasters

Brief Summaries of Recent Maritime Casualties—  
A Record of Collisions, Wrecks, Fires and Losses

NAME	DATE	NATURE	PLACE	DAMAGE RESULTING	NAME	DATE	NATURE	PLACE	DAMAGE RESULTING
A. T. Kinney	Aug. 7	Fog, on rocks	Detroit River	Heavy	John B. Cowle	Aug. 9	Struck dock	South Chicago	Dam. rud'r.
Algiers	Aug. 9	Disabled	Off Delaware brkw.	Steerer dis.	J. N. Pew	Aug. 8	Struck bank	Panama Canal	Leaking
Arcturus	Aug. 9	Struck	Bayfield Shoal	Leaking	Jonesport	Aug. 9	Fire	Off Red Hook	Not stated
Artigas	Aug. 13	Grounded	Deep Water Point	Not stated	John Ericsson	Aug. 14	Struck	Bayfield Shoal	Tanks leak.
Argosy	Aug. 20	Disabled	Antofagasta	Engines dis.	James Cahill	Aug. 23	Ashore	nr. Dunkirk	Full of water
Apache	Aug. 25	Collision	Jacksonville, Fla.	Hole in bow	Juliette	Aug. 23	Ashore	nr. Dunkirk	Abandoned
Arakan	Sept. 6	Disabled	Nagasaki	Machy. dis.	J. S. Ashley	Aug. 23	Grounded	nr. Detour	Considerable
Alice L. Pendleton	Sept. 10	Ashore	Cuttibunk	Not stated	J. L. Reiss	Sept. 7	Grounded	Plum Island	Undamaged
American	Sept. 11	Not stated	San Pedro	Cargo much damaged					
Bert E. Haney	Aug. 1	Disabled	Off Tillamook	Steam valve burst	Kendal Castle	Aug. 11	Disabled	Malta	Slide valve dis.
Barge 238	Aug. 15	Ashore	nr. Marblehead	Not stated	Kekoskee	Aug. 30	Fire	nr. Galveston	To boiler rm.
Barge 241	Aug. 15	Ashore	nr. Marblehead	Not stated	Klupfel		Storm	N. of Borkum Is.	Wrecked
Belita	Aug. 17	Ashore	Jamaica	Bot. dam.	Lafco	Aug. 8	Ashore	Para	Undamaged
Bidwell	Aug. 17	Disabled	Delaware Breakwr.	Not stated	Lorentz W. Hansen	Aug. 8	Grounded	nr. Campbellton	Jettis. cargo
Bur	Aug. 20	Gale, col.	Red Hook Flats	Plates & rail damaged	Long Beach	Aug. 11	Fire	Long Beach	Not stated
Betwa	Aug. 21	Grounded	Middle Ground, Cape Henry	Not stated	Loretta Haber	Aug. 23	Ashore	nr. Dunkirk	Full of water
Canadian Trader	Aug. 16	Grounded	Russell Island	Jettis. cargo	Lake George	Aug. 28	Ashore	Pelee Island	Jettis. cargo
Cahill	Aug. 23	Ashore	nr. Dunkirk	Abandoned	Los Alamos	Aug. 13	Disabled	Charleston	Eng. trouble
City of Buffalo	Aug. 28	Disabled	Off Ashtabula	High pressure cyl. dis.	Louis L. D.	Aug. 29	Hatch covers gone	Gothenburg	Cargo heated
City of St. Joseph	Aug. 29	Disabled	Gibraltar	Cir. pump broke	Lake Onawa	Aug. 22	Typhoon	nr. Hong Kong	Ashore
Cockaponset	Aug. 24	Disabled	Key West	Pumps dis.	Long Beach	Aug. 25	Fire	Bangor	Lost coal
Charles O. Jenkins	Sept. 3	Disabled	Off Racine	Broke shaft	Lorentz W. Hansen	Aug. 13	Ashore	Chatham, NB	Undamaged
Changsha	Aug. 21	On rocks	Tigi Bank, nr. Philippines	Not stated	Marie J. Thompson	Aug. 3	Fouled	Moss Point	Jibboom gone
Causeway	Aug. 17	Grounded	Needles	Undamaged	Monfalconne	Aug. 9	Hvy. weather	Panama Canal	To masts and deck
Camberway	Aug. 18	Disabled	Yarmouth Roads	Rud. blade broke	Mongolia	Aug. 16	Fire	North River	Slight to ship
Cascade	Aug. 26	Collision	Columbia River	Seriously damaged	Mary G. Duff	Aug. 26	Stranded	Bar off Sheet Harbor	Damaged
Charles Rockwell	Sept. 5	Fire	New York	Cotton dam.	M F	Aug. 26	Collision	Columbia River	Not stated
Carvalho Araujo	Sept. 2	Grounded	Off St. Johns, NF	Heavy to bow	Mayflower	Aug. 26	Collision	Columbia River	Seriously damaged
City of Rockland	Sept. 2	Fog, wrecked	Kennebec River	Ashore	Maria Parera	Aug. 16	Struck bank	Buenos Ayres	Prop. bent
Carolyn Francis	Sept. 4	Grounded	nr. Kuskow	Not stated	Mahanada	Aug. 16	Grounded	Calcutta	Windlass broke
Clarence McNally	Sept. 9	Sank	Chesapeake & Delaware Canal	Not stated	Munsomo	Sept. 11	Disabled	New York	Steerer trouble
Dakotan	Aug. 20	Ashore	Lat. 24 53 N. Lon. 112 W.	Not stated	Northern Light	Aug. 7	Grounded	nr. Petit Manan Is	Not stated
Devolente	Aug. 26	Fog, col.	N. of Los Angeles	Seriously damaged	Niels Nielsen	Aug. 17	Fire	Sydney	Slight to hull and cargo
Douglas Head	Aug. 18	Ashore	Mangans Bay	Making water	Nora	Aug. 25	Fire	New York	Cargo dam.
Darden	Aug. 27	Disabled	Charleston	Boil. trouble	North Pacific	Aug. 17	Col. with jetty	Barry	Not stated
Deutschfeld	Sept. 12	Grounded	Neches River	Water in hd.	Oregon Maru	Aug. 17	Disabled	Jacksonville	Rud. twisted
Ella V. Camp	Aug. 26	Collision	Cherry Is. Range	Not stated	Oregon Maru	Aug. 30	Disabled	Fernandina	Prop. dam.
Empress of Scotland	Aug. 21	Struck wreck	Off Isle of Wight	Starbd. eng. dis.	Ouderkerk	Aug. 16	Col. with lock	Brunsbittel	Unknown
El Abeto	Aug. 26	Fog, col.	N. of Los Angeles	Seriously damaged	Otho	Sept. 11	Refrigerator dis.	Pernambuco	Not stated
Egalite	Sept. 4	18 ft. water in hold	Off Macoris	Abandoned	President Wilson	July 27	Fire	San Francisco	Dangerous
E. T. Douglass	Sept. 5	Ashore	Keyport, Georgian Bay	Damaged	Pawnee	Aug. 10	Stranded	Nidningen, Sweden	Unknown
Elena Margarita	Aug. 12	Ashore	River Weser	Floated	Percival Roberts, Jr.	Aug. 22	Collision	Detroit River	Dam. some
Elswick Park	Aug. 16	Fire	Vancouver	Not serious	P. J. Ralph	Aug. 28	Lost wheel	Georgian Bay	Ashore
Eastgate	Aug. 16	Fire	Buenos Ayres	To bunker coal	Pawnee	Aug. 11	Struck sub. wreck	Off Florida	Prop. blade broke
Eastern Moon	Aug. 26	Disabled	Off Northumberland	Prop. gone	Pacific Maru	Aug. 16	Disabled	Savannah	Rud. broke
Ethan Allen	Sept. 6	Collision	New Orleans	Hole in bow	President Grant	Aug. 20	Fire	Kobe	To cargo
Evelyn V. Miller	Sept. 4	Disabled	St. Johns, NF	Leak. badly	Pilot	Aug. 26	Collision	Cherry Is. Range	Undamaged
Favorita	Aug. 15	Struck pier	New York	Undamaged	Panay	Sept. 10	Disabled	Soo	Comb. chamber dis.
Frank Rockefeller	Sept. 7	Grounded	Cedar Reef	Not stated	Regulus	Sept. 3	Grounded	Soo River	Undamaged
Furst Bulow	Aug. 13	Fog, col. and ashore	nr. Brake	Floated	Roxburgh	Aug. 31	Grounded	Off Botwood	Not stated
G. A. Tomlinson	Aug. 8	Ashore	Cheboygan Point	Jettis. cargo	Reho	Aug. 26	Collision	Columbia River	Seriously damaged
George W. Clyde.	Aug. 27	Sunk	Little Current	Released	Roding	Aug. 16	Leak.	Wapping	Sunk
G. R. Crowe	Aug. 24	In distress	150 m. E. of Tampico	Not stated	Robin Hood	Sept. 4	Disabled	Sabine	Rudder stock broke
Gerberville	Aug. 30	Disabled	Halifax	Not stated	Solitaire	July 24	Struck obj.	At sea	Dam. prop.
Gorleston	Aug. 17	Collision	Great Yarmouth	Plates brok.	St. Raphael	July 24	Struck reef	At sea	Leaking
Grit	Aug. 17	Collision	Great Yarmouth	Not stated	Siberian Prince	Aug. 12	Ashore	Off Victoria, BC	Floated
General Foch	Aug. 16	Grounded	Mayunkee	Floated	Sable I	Aug. 13	Struck sub. wreck	W. of Lamaline	Beached
Glenaan	Aug. 17	Disabled	Belfast	Eng. trouble	Springfield	Aug. 25	Collision	Jacksonville, Fla.	Sunk
Hulaco	Aug. 7	Grounded	nr. Mobile	Not stated	Superior	Sept. 9	Disabled	St. Clair River	Eng. trouble
Haber	Aug. 23	Ashore	nr. Dunkirk	Leak. badly	Springfield	Aug. 30	Grounded	St. Johns River	To cargo
Hoven	Aug. 29	Struck rock	nr. San Benito Is.	Sails badly torn	Sequoy	Sept. 6	Ashore	Off Constantinople	Not stated
Harriet B.	Aug. 21	Gale	At Sea	Not stated	Scottish Minstrel	Sept. 7	Collision	English Channel	Damaged
H. K. Waage	Aug. 25	Capsized	Brooklyn, N. Y.	Not stated	Sinams	Sept. 1	Leaking	North Sydney, CB	Hull strained
Hercules	Aug. 26	Collision	Columbia River	Not stated	S. M. Clement	Sept. 12	Disabled	Off Long Point	Wheel trble.
Hornet	Sept. 10	Not stated	Delaware Breakwr.	Water in hd.	Turret Cape	Aug. 7	Ashore	nr. Contre Coeur	Undamaged
Ingrid	Aug. 16	Drag. anchor	Newhaven	Drifted	Taiyo Maru	Sept. 5	In distress	nr. Japan	Not stated
Indian Prince	Sept. 8	Fire	Santos	In cross bunkers	Tuscan	Sept. 6	Disabled	New York	Leaky sea valves



## Pacific Grain Rates Hit New Low Level

Grain freights from north Pacific to United Kingdom-Northern Europe have been steadily declining for several weeks due to lack of buying power and ample tonnage offerings. Late in August, the market touched the low level of 20 shillings, establishing a new postwar record. At San Francisco, 6000 tons of barley were booked at 20 shillings for August-September shipment, tonnage in distress accepting this unusually low rate.

Exporters who contracted for full cargo steamers during the summer for fall loading at 37s 6d are facing serious losses as in some instances their grain is unsold and at present freight rates they stand to lose from \$10,000 to \$20,000 in freights alone on each charter.

Since last February when the parcel rate touched 40 shillings, European grain freights have been weak. The present low level is 2s 6d under the minimum of last season and only about 2 shillings higher than the lowest mark touched in the years immediately pre-

ceding the war. In the five years before the war, the grain market ranged from 27s 6d to 37s 6d.

The present market recalls several seasons in the early part of the century when European freights sagged to 15 shillings and under, in some instances wheat and barley having been carried by sailing ships at ballast rates. In 1885 there was an unusual demand for grain and sailer rates soared to 85 shillings. During the war the scarcity of space was severely felt in the export grain trade, \$50 per ton being paid.

# Ocean Freight Rates

Per 100 Pounds Unless Otherwise Stated

Quotations Corrected to Sept. 10, 1923, on Future Loadings

New York to	Grain	Provisions	Cotton (H. D.)	Flour	General cargo cu. ft.	100 lbs.	Finished steel	From North Pacific Ports to	Lumber Per m. ft.
Liverpool.....	1s 6d	\$0.40	\$0.20	\$0.15	\$0.30	\$0.60	\$7.00T	San Francisco.....	\$6.00 to 7.00
London.....	1s 6d	0.40	0.20	0.15	0.30	0.60	7.00T	South California.....	6.50 to 7.50
Christiania.....	\$0.15	0.40	0.40	0.22	0.42½	0.85	8.00T	Hawaiian Islands.....	10.00 to 10.50
Copenhagen.....	0.12	0.40	0.40	0.20	0.42½	0.85	8.00T	New Zealand.....	15.00 to 16.00
Hamburg.....	0.07	0.35	0.25	0.14	0.37½	0.75	7.50T	Sydney.....	15.00 to 16.00
Bremen.....	0.07	0.35	0.25	0.14 to 0.15	0.37½	0.75	8.00T	Melbourne-Adelaide....	15.00 to 17.00
Rotterdam.....	0.10	0.32½	0.25	0.15	0.35	0.70	7.00T	Oriental Ports.....	11.50 to 15.00
Antwerp.....	0.07	0.32½	0.25	0.16	0.35	0.70	7.00T	Oriental Ports (logs)....	18.00 to 19.00
Havre.....	0.10 to 0.12	0.40	0.22½	0.23	0.40	0.75	8.00T	Peru-Chile.....	13.00 to 15.00
Bordeaux.....	0.10 to 0.12	0.40	0.22½	0.23	0.40	0.75	8.00T	South Africa.....	19.00 to 20.00
Barcelona.....	0.18	12.00T	0.40	10.00T	—12.00T—	10.00T	10.00T	Cuba.....	13.00 to 16.00
Lisbon.....	0.20	0.60	0.50	7.00T	—20.00T—	7.00T	7.00T	United Kingdom.....	80s to 90s
Marseilles.....	0.12	0.55	0.50	5.60T	—20.00T—	5.00T	5.00T	United Kingdom (ties)..	70s to 80s
Genoa.....	0.15	0.50	0.35	0.30	0.40	0.80	6.00T	Baltimore-Boston range.	\$9.00 to 12.00
Naples.....	0.15	0.50	0.35	0.30	0.40	0.80	6.00T	Baltimore-Boston range.	(ties)..... Not quoted
Constantinople.....	0.23	15.00T	0.75	0.35	—20.00T—	8.00T	8.00T	Buenos Aires.....	14.00
Alexandria.....	0.25	15.00T	0.75	0.35	—20.00T—	8.00T	8.00T	Flour and Wheat	
Algiers.....	0.20	0.75	0.75	0.30	—20.00T—	7.00T	7.00T	Oriental Ports (net ton). \$	6.00
Dakar.....	14.50T	15.00T	15.00T	9.00T	—15.00T—	10.00T	10.00T	U. K. and Continent	
Capetown.....	9.00T	18.00 to 20.00T	7.00 to 7.70T	19.00 to 21.00T	6.00 to 6.60T	6.00T	6.00T	(gross ton).....	20s to 25s
Buenos Aires.....	19.00 to 21.00T	22.00T	9.00T	—22.00T—	8.00T	8.00T	8.00T	General Merchandise	
Rio de Janeiro.....	22.00T	0.17½ to 0.22½*	0.37½*	0.17½*	0.47*	0.94*	0.20*	Oriental ports.....	\$9.00
Pernambuco.....	0.25	0.30	0.35	0.25	0.52½	1.05	0.30	Oriental Ports.....	\$5.00T to 7.00T
Havana.....	1.07	0.70	0.70	0.45	0.80	12.00T	12.00T	Oriental Ports.....	35c to 50c per cwt
Vera Cruz.....	0.40 to 0.70	0.70 to 1.00	18.00T	18.00-24.00	9.00-12.00T	10.00T	10.00T	United Kingdom.....	90 cents per box
San Francisco.....	18.00T	16.00T	0.65	15.00T	—16.00T—	10.00T	10.00T	Oriental Ports.....	\$5.00
Sydney.....	16.00T							Box Shooks	
Calcutta.....								Oriental Ports.....	\$10 measurement ton
T—Ton.	†Landed.	††Heavy products limited in length.						Metal Junk	
								Oriental Ports..	\$10.00
								Scrap Copper	
								Oriental Ports.....	\$5.00
								Salt Herring	
								Oriental Ports.....	\$8 measurement ton
								Machinery	
								Oriental Ports.....	\$7.00
								Automobiles	
								Oriental ports.....	\$8.00

## Principal Rates To and From United Kingdom

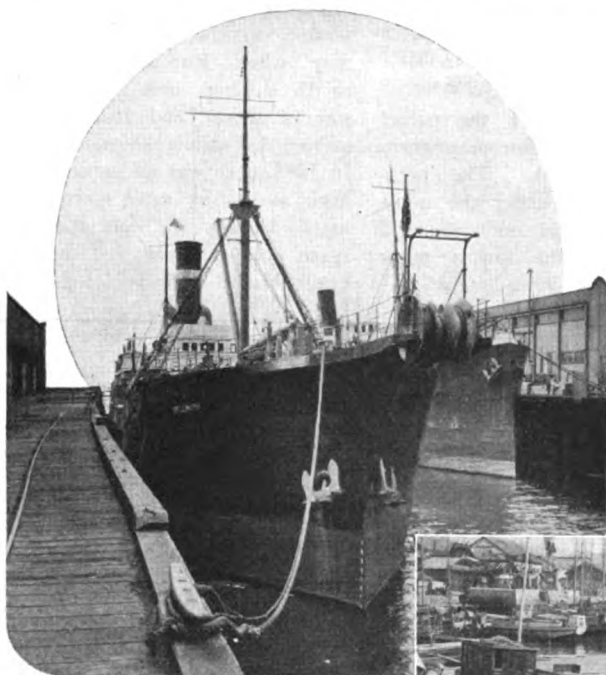
	s	d		s	d
Grain, River Plate to United Kingdom.....	21	6	Coal, United Kingdom to Buenos Aires	14	0
Coal, South Wales to Near East.....	10	0	Iron ore, Bilbao to Middlesbrough....	7	0
Coal, United Kingdom to Hamburg.....	6	0	General British market, six months		
Coal, United Kingdom to Alexandria.....	11	0	time charters, per ton per month....	6	0
Coal, United Kingdom to Rotterdam.....	4	10			

## Bunker Prices

At New York					At Philadelphia					Other Ports	
		Coal alongside per ton	Fuel oil alongside per barrel	Diesel oil alongside per gallon			Coal alongside per ton	Fuel oil alongside per barrel	Diesel oil alongside per gallon		
July	1, 1922	\$8.10	\$1.26½	4.75 cents	July	1, 1922	\$8.00	\$1.15	4.25 cents	Boston coal, per ton . \$8.69	
Oct.	13.....	8.55	1.45	5.50 cents	Oct.	13.....	8.30	1.47	5.00 cents	Boston, oil, f. a. s., per barrel.....\$1.47	
Jan.	11, 1923	7.90	1.50	4.75 cents	Jan.	9, 1923	7.30@8.00	1.57½	5.00 cents	Hampton Roads, coal, per ton t.i.b. 5.50@5.70	
April	11.....	6.75@7.50	1.76½	5.10@5.35c	April	10.....	6.00@6.50	1.87	5.10 cents	Cardiff, coal, per ton. 20s	
July	11.....	5.50@7.00	1.76½	4.40@5.50c	July	9.....	5.25@6.25	1.62@1.73	4.35@4.60c	London, coal per ton 26s	
Aug.	8.....	5.50@7.00	1.66½	4.25@4.67c	Aug.	8.....	5.50@6.00	1.62	4.35 cents	Antwerp, coal, per ton 28s	
Sept.	10.....	5.50@7.00	1.66½	4.15@4.65c	Sept.	10.....	5.50@6.00	1.52½@1.60	4.25@4.88c.		



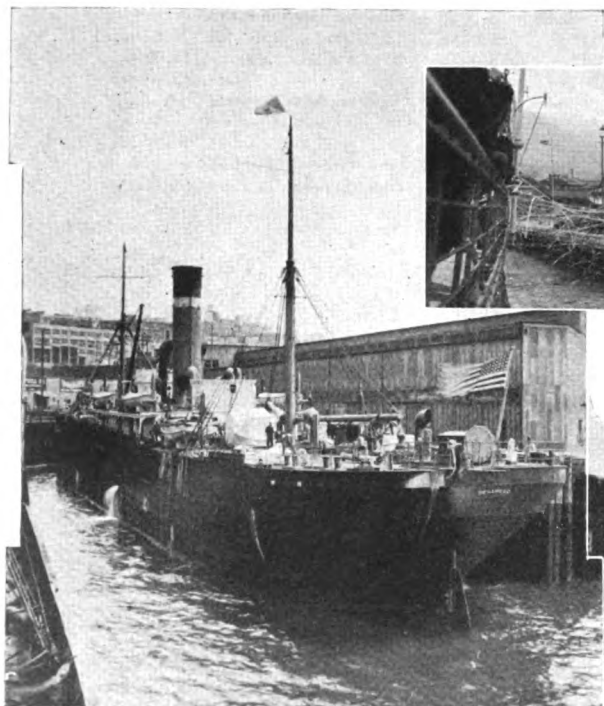
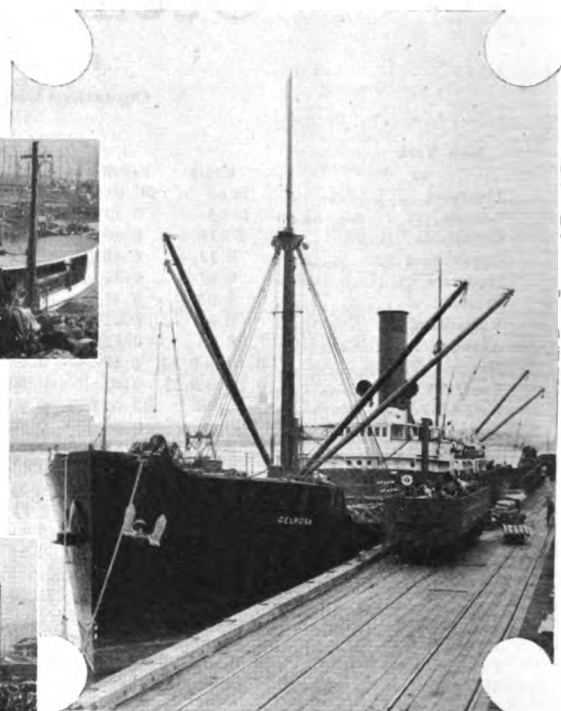
# Photographs from Far and Near



Cable steamer Dellwood, newest American vessel for this specialized service. Bow view at left shows completed ship, view below of a sister ship, shows bow and deck before alterations began.



Queer looking Japanese craft and (below) streamers running from pier to departing ship. Views taken on famous Inland Sea



War department's cable steamer Dellwood, now completed and in service on the Pacific



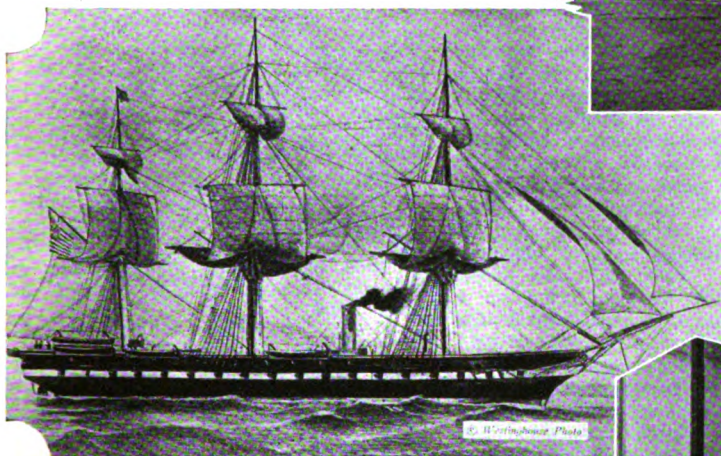
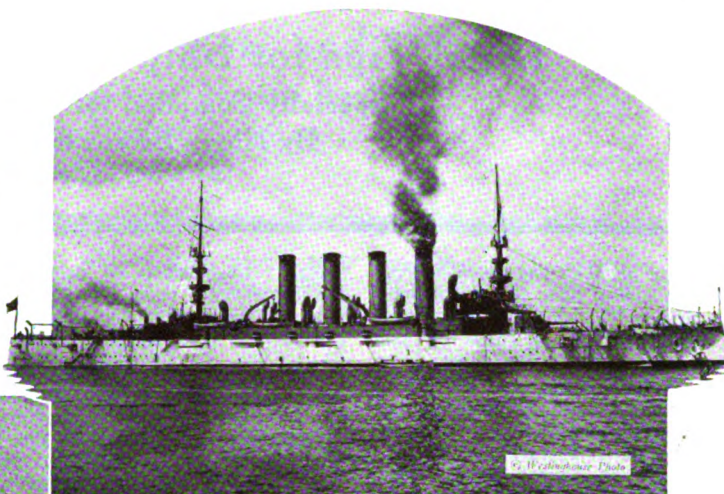
Firemen receiving free instruction in oil burning systems at Todd school, New York. The courses cover five 3-hour sessions





# Latest Marine News in Pictures

With the U. S. S. dreadnought Colorado just placed in commission, interest reverts to her predecessors in the fighting fleet. At right is the armored cruiser of the same name which was completed in 1905 and saw service in the war as the Pueblo

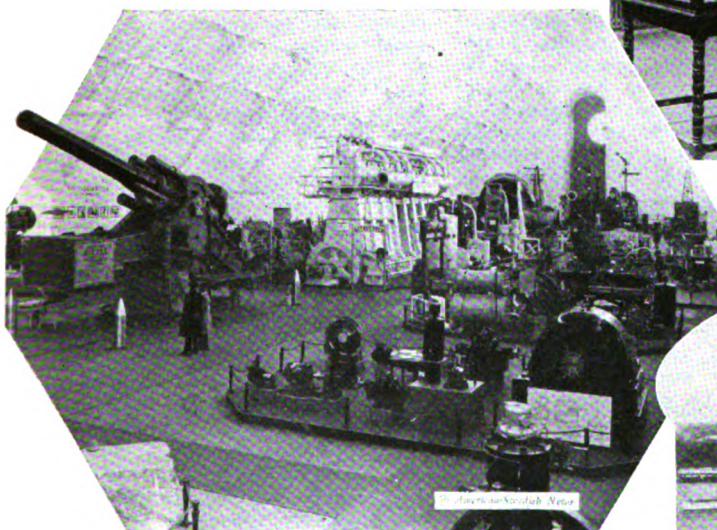


Above is the first Colorado, a steam frigate built in 1856. She fought her way through the civil war. Her tonnage was about one-tenth of the new battleship

Another scene on Inland Sea, Japan, a section which escaped the earthquake and now is the center for distribution of relief. Map is typical guide set up for foreign auto tourists



At the big Gothenburg exposition, is this model of an ancient Swedish man-of-war. The complete collection not only of relics but of modern marine equipment has made this tercentennial jubilee a notable one



A part of the machinery hall at the Gothenburg exposition showing a Swedish built diesel engine, rated at 2000 horsepower and intended for installation in a 10,000-ton motorship. Swedish built coast defense gun is exhibited at the left.

View below shows English and French battleships at anchor in a Swedish port, having recently made an official call.





# Late Decisions in Maritime Law

## Legal Tips for Shipowners and Officers

Specially Compiled for Marine Review

By Harry Bowne Skillman

Attorney at Law

IN THE case of *MANHATTAN*, 276 *Federal Reporter* 823, an exporter of grain contracted with the owner of a vessel for cargo space on said vessel for 5000 bushels of wheat from Baltimore to Hamburg, and before doing so, in accordance with the custom of the trade, contracted for the sale of the grain in Hamburg to arrive by such vessel. The owner desired to substitute another vessel, but the Hamburg buyer refused to consent, except at a stated reduction in the price of the grain and respondent would not agree to stand the loss and refused to accept the shipment on the vessel named, the exporter sold the grain in Baltimore and brought suit for breach of contract. The court held that the damages recoverable were limited to the amount the exporter would have lost if he had shipped by the other vessel and accepted the reduced price. It was further held that a shipowner, contracting to carry a cargo to a foreign port, who had knowledge of the custom of shippers to contract in advance for sale of cargo to arrive, contracts with reference thereto, and on breach of the contract to carry is liable for the resulting loss to the shipper, arising from his failure to deliver under his contract of sale.

\* \* \*

No circumstances exist under which a vessel obstructing navigation, for the purposes of civil suit, becomes an "outlaw;" it is always necessary for other vessels having to do with her to exercise care according to the circumstances. However, it was held in *LADY OF GASPE*, 276 *Federal Reporter* 900, that duty to exercise such care does not require insuring the safety of the obstructing vessel, and the carelessness or obstinacy of her navigators is a circumstance to be considered in determining such care. The facts in the case showed that a lighter was moored at the entrance to a slip in such a position as to obstruct navigation by an incoming steamer, and refused to move unless a tug was furnished to take her where she desired to go. The steamer struck against the lighter, in no way injuring the hull, in an effort to push her to one side, and the court held that the steamer was not at fault.

\* \* \*

Though the immigration act of Feb. 5, 1917, imposes a penalty on steamship owners who fail to prevent the landing of an alien at any time or place other than as designated by the immigration officers, such penalty is not recoverable, it was declared in the case of *PARTHIAN*, 276 *Federal Reporter* 903, without proof that the alien has landed, or proof that the steamship officers have failed to produce the alien at the immigration station within the time ordered by the in-

spector; the burden of proof is on the government to show that the alien has landed contrary to the statute and the instructions of the immigration officers.

\* \* \*

From the earliest times, it was said in *ST. PAUL*, 277 *Federal Reporter* 99, it has been established in the maritime law that a ship is bound to her cargo, and the cargo to the ship, and that the ship and cargo are so bound, and the lien attaches when the cargo is loaded on the vessel. Furnishers of repairs and supplies to fit a vessel, it was held, have a lien superior to that of cargo owners for damage to cargo resulting from deviation from the voyage, but liens for freight prepaid, which put the vessel in funds for the voyage, stand on a parity with those for repairs and supplies. "It is, of course, well settled," quoting from the decision, "that priority of lien in point of time is not controlling, but that priority is often determined by the service rendered or the thing done. The important result to be attained is to keep the ship moving in commerce. As she starts for her destination, she must be supplied, and often repaired. \*\*\* many of these repair and supply bills are small, and those who make repairs and furnish supplies necessarily rely in whole or in part on the security of the ship. What they do is for the benefit of the ship, and without what they furnish the ship could not sail. Cargo is, of course, of high importance. The freights justify the venture and the voyage, but the cargo owner can protect himself by insurance, and safeguard his shipment in a way not open to the supply or repair men. If it were to be held, as a matter of law, that the lien of cargo was always superior to that of the furnishers of supplies and the makers of repairs, great difficulty might be found in obtaining supplies and having repairs done; for \*\*\*\* the cargo liens naturally would be so large, that they might wipe out or seriously impair the lien for repairs and supplies, and the repair and supply men might well hesitate or decline to extend credit on the faith of the ship."

\* \* \*

Where a ship or her cargo has been saved from impending peril by the sea or other navigable water, the persons by whose assistance it has been achieved are entitled to compensation or salvage. In determining the amount of the salvage to be awarded, there are certain circumstances by which the courts are usually guided, as follows: (1) The labor expended by the salvors in rendering the salvage service; (2) the promptitude, skill, and energy displayed in rendering the service and saving the

property; (3) the value of the property employed by the salvors in rendering the service and the danger to which such property was exposed; (4) the risk incurred by the salvors in securing the property from the impending peril; (5) the value of the property saved; (6) the degree of danger from which the property was rescued. It is to be noted, furthermore, that compensation as salvage is not viewed by the admiralty courts merely as pay, on the principle of a *quantum meruit*, or as a remuneration *pro opere et labore*, but as a reward given for perilous services, voluntarily rendered, and as an inducement to seamen and others to embark in such undertakings to save life and property.—*NIELSEN*, 277 *Federal Reporter* 164.

\* \* \*

A wholly disabled steamer, being brought into a slip by tugs, is not responsible for collision with a moored vessel. The liability attached to the company having in charge the berthing of the steamer, where no special fault can be found with the tugs being used.—*ASCUTNEY*, 277 *Federal Reporter* 242.

\* \* \*

In the case of *NEPTUNE*, reported in 277 *Federal Reporter* 230, the members of the crew contended that they had a lien for their share of the salvage money on their vessel (which had rendered salvage services to another vessel), and sought either to use the wages lien as an analogy, or to treat their demand as one for, or like, wages. The court said: "There is in this a misapprehension of the nature of the wage lien. It is based on contract: the moment one joins a crew by agreement, the ship is his security for wages, contractual, reasonable, or statutory, as the case may be. But many a discovered stowaway has worked quite as hard, and quite as much for the vessel's benefit, as many crew members; but, unless he were put on the articles, he would have no lien for wages. Nor does every maritime contract for wages supply a lien, for the master has none; yet his is a large share in most salvage awards, and it can not claim any kinship to a wage lien. But salvage service \*\* is essentially something voluntarily given \*\*." But a seaman by his contract is not bound to save; the law encourages him to do so, by rewards out of what he saves. 'No cure, no pay,' is the essence of salvage \*\*. It logically follows that, while the seaman's contract exists, he is as much bound to labor for his ship in storm or misfortune, as at other times; wherefore, he can not, *qua* seaman, demand salvage from his own ship.

# Late Decisions in Maritime Law

## Legal Tips for Shipowners and Officers

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**A** MAN who charters his vessel for harbor navigation in New York and in the winter time must regard careful, proper navigation through ice fields as a use reasonably to be expected. "Not that ice damage under all circumstances is reasonable wear and tear; not that navigation through all ice fields, unbroken, or even broken up, is a use reasonably to be expected. But in the absence of unusual conditions, making the situation more than ordinarily hazardous, the barge demised for winter work may be towed in a broken-up ice field; if there be no negligence in the towing, damage caused by knocks from floating ice is chargeable to reasonable wear and tear."—Dittmar v. Sargent, 277 Federal Reporter 237.

\* \* \*

An award of \$85,000 for pulling a vessel from proximity to a fire was held excessive in the case of *WEST MOUNT*, 277 Federal Reporter 168, and the amount reduced to \$40,000. It was shown that the vessel was of the book value of slightly over a million and a half dollars, was lying at a pier without sufficient steam to move it, was pulled out and anchored in about 45 minutes after the salvors' services were accepted, and that the weather conditions were fine.

\* \* \*

"The seamen under the shipping articles have a threefold remedy for their wages against (a) the ship; (b) the owners; and (c) the master. There is no diversity to this rule \* \*. The laws of the United States as well as those of England have provided such remedy. \* \*. The general owner is liable for seamen's wages only when privity with the master is shown. \* \*. An owner may not escape liability for wages by transfer of ownership pending fulfillment of articles, \* \*. nor during a voyage, \* \*. nor by abandoning the ship to underwriters \* \*. \* \*. but where the owner makes a *bona fide* sale, and delivers possession of the ship, and surrenders control to the purchaser, he is not liable for the wages of the seamen employed by the master, who was hired by the purchaser; the vessel being navigated by such master and seamen, and voyage directed by the purchaser or his crew. \* \*. And the fact that the sale was not consummated by the execution of formal transfer, and the ship still documented in the name of such owner, would not change the status."—Everett v. United States, 277 Federal Reporter 256.

\* \* \*

A vessel drifting from her moorings is liable for damage consequent thereon, unless she can affirmatively show that the drifting was the result of inevitable

accident or *vis major*, which human skill and precaution and the proper display of nautical skill could not have prevented. It was the duty of the tug master, as each barge or flotilla of barges was made fast to a flotilla of moored barges, to see that they were sufficiently made fast to hold the whole flotilla, and, when another boat was added, it was the duty of the tug master to see that the fastenings were sufficient to hold the then complete flotilla and where barges broke away and drifted against barges of other owners, because another boat was hung up outside the flotilla, the tug's owner was liable.—*Pennsylvania Railroad Co. v. James McWilliams Towing line*, 277 Federal Reporter 798.

\* \* \*

One who makes repairs or furnishes supplies to a vessel may have an action *in personam* to recover therefor or he may have a right *in rem* against the ship which enables him to cause the ship to be sold that he may be repaid out of the proceeds. Under the maritime law when unchanged by statute, his right to a lien against the ship depended upon the character of the ship. Thus in *The General Smith*, 4 Wheat. 438, 4 L. Ed. 609, decided by the Supreme Court in 1819, in an opinion written, by Justice Story, it was decided that by the common law material men, furnishing repairs to a domestic ship have no lien upon the ship for their demand, although a lien exists for repairs made or necessities furnished to a foreign ship, or to a ship in a port of a state to which she does not belong. It appears that a strenuous attempt was made to bring about a reconsideration of the question in *Rodd v. Heartt*, 21 Wall. 558, 22 L. Ed. 654, but the court held it to be a settled principle of American jurisprudence. Where supplies are ordered in the home port or repairs are made in such a port, they are thought to be furnished on the personal credit of the owner, as ordinary goods are furnished. But in a foreign port, in the absence of the owner, the presumption is that the supplies are furnished or the repairs made on the credit of the ship.

"Congress, however, by the act of June 23, 1910, 36 Stat. P. 604, c. 373, enacted that any person furnishing repairs, supplies, or other necessities to a vessel whether foreign or domestic, upon the order of the owner or owners of such vessel, or of a person by him or them authorized, shall have a maritime lien on the vessel which may be enforced by a proceeding *in rem*, and section 2 provides:

"That the following persons shall be presumed to have authority from the owner or owners to procure repairs, supplies, and other necessities for the vessel: The managing owner, ship's hus-

band, master, or any person to whom the management of the vessel at the port of supply is intrusted." *KALFARLI*, 277 Federal Reporter 391.

\* \* \*

While the Supreme Court seems never to have decided the point, the general consensus of opinion in the state courts and in the inferior federal courts is that labor and materials furnished to a contractor do not constitute a lien upon the vessel, unless at least notice be given to the owner of such claim before the contractor has received the sum stipulated by the contract. It would seem, it was said in the case of *JUNIATA*, 277 Federal Reporter 438, that if a subcontractor really acquired a maritime lien, such notice could scarcely be necessary to protect it. "Ordinarily," continued the court, "maritime liens, until they become stale, having once attached to a ship, are unaffected by subsequent transactions of other parties concerning it. \* \*. The cases in which a so-called subcontractor has been held entitled to a lien or to a right in the nature of a lien against the ship appear all to have been cases in which, upon the facts, it was possible reasonably to hold that he was not a subcontractor at all, but had an agreement with the owner, made through the contractor as the owner's agent \* \* or else where state laws gave such right to a subcontractor. Since the passage of the fifth section of the act of 1910 (36 Stat. 605) re-enacted by the Merchant Marine act of 1920 (41 Stat. 1006, sec. 30, subsec. "x"), all the provisions of state statutes are superseded in so far as they purport to create rights of action enforceable *in rem* against vessels for repairs, supplies and other necessities."

\* \* \*

Where goods are shipped under a clean bill of lading the obligation is that they are to be put under deck, unless there is an express written agreement to the contrary or a custom to the contrary is proved. As silence in a bill of lading as to stowage is not an express contract to carry under deck the shipowner may prove an agreement to carry on deck where a claim for loss is made. When a shipowner issues a bill of lading which calls for a shipment under deck, and then carries the goods on deck, his breach of the contract of shipment is such as to deprive him of the benefit of the valuation clause in the bill of lading.—*SARNIA*, 278 Federal Reporter 459.

\* \* \*

Obligation of diligence on a steamer approaching a schooner to avoid collision is very great; the higher the speed, the greater the care.—*CREOLE*, 277 Federal Reporter 119.



# Activities in the Marine Field

Latest News from Ships and Shipyards

## Lake Yards Launch Three Ships

**D**ELIVERY or launching of new vessels continues on the Great Lakes although the absence of contracts in recent months will keep the cleared berths vacant. During the past few weeks, the new vessels have ranged from large passenger liners to self-unloaders and to new types of self-propelled barges.

On Sept. 15, the liner GREATER DETROIT, was launched at the Lorain, O., yard of the American Shipbuilding Co. After a few weeks' additional work on the hull, it will be towed to Detroit for engine installation and completion. A sister ship the GREATER BUFFALO, will be launched shortly. These vessels are being built for the Detroit & Cleveland Navigation Co. Designed by Frank E. Kirby, they follow the general plan of lake side wheel steamers, but taking first place in size. The overall length is 550 feet, breadth of hull 58 feet, breadth over the guards amidships 100 feet, depth 23 feet 6 inches. On the promenade deck will be 205 rooms, including 12 parlors and baths. On the gallery deck will be 254 rooms, also with 12 parlors and baths. On the upper deck will be 166 double berth rooms. These ships will carry two rudders, one each fitted at the bow and stern. This design results from the narrow channels which are followed at times. The public rooms are to be luxuriously furnished.

The vessels will trade between Detroit and Buffalo, the two ships now on that run transferred to the Cleveland-Detroit service, and the two vessels on this last run, put in service on a new route from Detroit to Chicago, stopping at Mackinac.

The self-unloader JOHN W. BOARDMAN was launched on Sept. 6 at the Toledo, O., yard of the Toledo Shipbuilding Co. She is building for the Huron Transportation Co.

On Sept. 1, another self-unloader was launched. This is the B. H. TAYLOR, built at the Lorain yard and to be operated by the Bradley Transportation Co. She is a large vessel, being 552 feet long, 60 feet in beam and 30 feet deep. She will run in the stone carrying trade.

Delivery was accepted on Sept. 10 of the motorship TWIN PORTS, an unusually interesting type of lake built freighter. She will trade in the Great Lakes-barge canal service between Duluth and New York in the open navigation season, and will run to the West Indies during the winter. She was designed by Henry Penton, built by the Great Lakes Engineering Works at Ashtabula, O.,

for the Minnesota-Atlantic Transit Co., of which A. Miller McDougall, Duluth, is president. She has two diesel engines driving generators which actuate motors directly coupled to the twin screws. All control is centered in the pilot house. On account of the low clearances on the barge canal, the highest permanent structure is only about 4½ feet above the deck. The vessel left immediately after her trial trip to load for New York. A sister ship, the TWIN CITIES, will be ready within a few days.

Iron ore continues to move forward in heavy volume, although September will fall somewhat below the 10,000,000-ton mark set both in July and August. Coal is being shipped faster than received and boats are having more delay in getting upbound cargoes. The grain trade is opening up and higher rates are being paid from Canadian ports at the head of the lakes.

The steamer PETCOL has been sold by Peterson & Collinge to the Aetna Cement Co., Detroit. The same firm also sold the barge COLPET to J. L. Russell of Toronto. These vessels were formerly

the RICHLAND QUEEN and the RICHLAND DAISY.

G. A. Tomlinson, who is one of the leading operators on the lakes, has been elected a member of the American committee of Lloyd's Register of Shipping for four years.

Capt. George W. Warwick died at Courtright, Ont., Sept. 4. He was for 18 years on vessels of the Tomlinson fleet, his last ship being the JAMES DAVIDSON, which he put into commission.

Frank Seither, a director of the Becker Steamship Co., and for whom one of its ships is named, died at Cleveland on Aug. 26. He was 76 years old.

The steamer SAGINAW, the only large wooden vessel built on the Great Lakes for the government during the war, has been brought back to fresh water. She will act as a naval training ship at Buffalo. The SAGINAW is so staunchly built that at one time it was thought she would be employed in polar explorations.

## From the Northwest

**W**ATER transportation companies on Puget sound, which for several years have met the severest kind of automobile competition, are now finding that the automobile is reviving and stimulating business to a volume equal if not greater than that of earlier record years. The automobile has caused the local steamship companies severe losses but now they are recouping. Practically every water line has established automobile ferry service which is developing a volume of business far greater than anticipated.

Taking the initiative in eliminating many calls at small Puget sound ports, the Luckenbach line on Sept. 1 inaugurated the system of loading all eastbound cargo at Seattle. Freight from the small mill and cannery ports will hereafter be barged to central terminals at Seattle and assembled for fast loading. This plan is expected to place Seattle seven days closer to New York and follows the system long in vogue at the world's leading ports. Other intercoastal lines are expected to adopt the same system. Heretofore it has been customary for the

various lines to call at small ports to load parcels of 500,000 to 1,000,000 feet of lumber. This practice has frequently been referred to as a "jitney" service which the larger companies have long been desirous of eliminating as it involved much loss of time.

Uniform rates and practices in handling cargo at all north Pacific ports have become effective following action taken by the recently organized Pacific Northwest Ports Terminal association. The new rules cover intercoastal, coastwise, European and Oriental traffic at both public and private terminals at Seattle, Tacoma, Grays Harbor, Vancouver, B. C., and probably also Oregon ports.

Residents of Bellingham, Wash., are urging the government to dredge the harbor to a minimum depth of 35 feet and also to remove Starr rock which is declared a dangerous menace to navigation.

Interesting tests have been conducted by the navy to determine the loss of speed due to the accumulation of sea

growths on the hulls of battleships. During a recent trial in Puget sound waters, it was found that while running at full speed the battleship *TENNESSEE* was retarded two knots an hour by a growth of sea weeds and barnacles accumulated in 9½ months. Instead of making 21 knots with a clean hull, the fighting craft with the same oil consumption and horsepower developed only 19 knots.

Army engineers are considering bids recently opened for dredging in the Lake Washington ship canal. Two projects are contemplated, one involving the removal of 339,000 cubic yards and the second 978,000 cubic yards.

One of the most peculiar marine mishaps in Pacific coast annals recently took place at Portland when the intercoastal liner *VINITA*, due to mistaken signals, crashed into the river steamboat *HERCULES*, drove the latter craft into a barge which in turn was hurled against the Burnside street bridge. Then the runaway steamer collided with a fleet of river craft. The barge was sunk and the bridge was so seriously damaged it had to be closed to traffic.

The steel steamer *EL ABETO*, built at Ecorse, Mich., in 1919 for the shipping board, was seriously damaged off the California coast in collision with the tanker *DEVOLANTE*. The vessels met in dense fog. The *EL ABETO* is now engaged in freighting lumber and logs between British Columbia and Los Angeles.

Following establishment of its headquarters at San Francisco, the American-Hawaiian Steamship Co. has opened offices in Seattle with Vice President Henry Dearborn in charge. Another branch office has been opened in Portland. Since the American-Hawaiian re-established intercoastal service five years ago it has been represented at Seattle by W. C. Dawson & Co.

One of the fastest sailing voyages on record was recently made by the schooner *SOPHIE CHRISTENSON* which sailed from Tacoma to San Pedro in nine days during which she covered about 2000 miles.

The steel steamer *LAKE FILBERT*, recently purchased by the Alaska Steamship Co., has been renamed *NARENSA* after a river in southwestern Alaska. She is operating regularly out of Seattle and has been found admirably adapted for the northern route. The *LAKE FILBERT* is a product of the Toledo, O., yards of the Toledo Shipbuilding Co. "She is one of the finest vessels I have ever been in," states Capt. C. P. McCarthy, the vessel's new master. "She is as stiff as a church in heavy weather and speaks well for the Toledo yards in which she was constructed."

Responsibility for providing and operating all public grain elevators at Vancouver, B. C., has passed from the board of grain commissioners with headquarters at Ft. William, Ont., to the Vancouver harbor commission. This change was made because of the rapid growth of the grain movement through Van-

couver, the distance of the Ft. William body and the advantage of having the terminals under local control.

Five steamship lines operating in the intercoastal route have signified their intention of taking advantage of the 5-cent differential allowed by the New York westbound conference. Under this arrangement, lines operating a service of less frequency than 14 days may make a rate reduction of 5 cents and not exceeding 7½ cents on cargo shipments where the conference rate is 55 cents or more, steel, iron and kindred articles excepted.

The former shipping board steel steamers *JACOX*, *GLYMONT*, *DOYLESTOWN* and *CADDOPEAK*, which were used in the feeder services out of Hongkong, have

returned to the Pacific coast for service between Puget sound and California. They have been purchased by the Charles Nelson Co. for the coasting berth.

Priority of claims under the ship mortgage law over other claims and liens against a vessel has been upheld in an admiralty decision at San Francisco and is regarded as a ruling of great importance to all shipping interests. The decision was rendered in the case of the steamer *NANKING*, formerly owned by the defunct China Mail company.

John P. Hausman, well known customs broker of Seattle, has been appointed vice consul for Argentina for the state of Washington.

## On Californian Shores

COMMENCING about Oct. 15, the United American lines jointly with Houlder, Weir & Boyd, Inc., will inaugurate a weekly service between Baltimore and New York on the Atlantic coast and Los Angeles, San Francisco, Portland and Seattle on the Pacific coast. A fleet of 12 modern steam freighters will be put on the run. The fleet will include the *SUBBURY*, *IPSWICH* and *MYSTIC*, formerly in the gulf service of the American-Hawaiian line; the *POMONA* and *HANLEY* of the Weyerhaeuser Timber Co., the *PETER KERR* and *EASTERN KNIGHT*, owned by the Columbia Pacific Shipping Co., Portland and operated in the Crowell & Thurlow service until recently; the *VINITA KERMIT* of the United American lines service. Dudley W. Burchard has been appointed Pacific coast manager for the United American lines and has opened offices at 230 California street, San Francisco.

The government report of the Panama canal trade for June shows an increase of 268 per cent in the Pacific to Atlantic coast cargo tonnage over June or last year. Mineral oils made up approximately 65 per cent of the total cargo with a total of 934,707 tons against 48,659 tons in June of 1922. Lumber shipments totaled 170,216 tons as compared with only 82,727 in the previous June. The total tonnage of all commodities moved amounted to 1,440,457 tons as against 391,101 in June, 1922.

J. M. Daily, manager of the marine department of the San Francisco chamber of commerce, reports that shipping entering and departing from the port of San Francisco continues unprecedented, each succeeding month breaking the record of the preceding month. During the first eight months of 1923, a total of 8824 vessels arrived and departed, an increase of 1621 over the first eight months of 1922. While figures reveal a large gain in the number of vessels carrying cargoes, they also show a heavy increase in tonnage. The arrivals and departures during the first eight months of this year, both steam and sail, represent 19,317,376 tons, compared with

14,038,467 for the same period last year, an increase of 5,278,909 tons. The August record shows 625 vessels arrived and 629 departed, as compared with 616 and 582 respectively for July.

Increased production of the oil wells in the southern part of California has brought about a striking change in shipping conditions on the Pacific coast during 1923. Since January 32 privately owned oil tankers have entered the trade carrying oil from Pacific coast ports to Atlantic ports. Most of these new vessels were formerly in the Mexican Atlantic trade. A recent government survey of shipping conditions shows that 100 tankers of a total gross tonnage of 786,381 or almost 40 per cent of the tankers under the American flag, were engaged in carrying oil from southern California to Atlantic ports in July of this year. Eighteen of the new entries into the oil trade during the year were transferred from government to private ownership, eight were diverted from the Mexican trade and three from overseas trade.

The stevedores' unions along the Pacific coast, presented, on Sept. 1, to shipowners and operators, a demand for a wage increase of 20 cents an hour and have set Sept. 15 as the final date for acceptance or for the opening of negotiations. The present rate is 80 cents an hour. Since the longshoremen's strike in 1919, the shipowners and operators have ceased to recognize the unions. The new scale of wages demanded by the unions is the same that was in effect prior to the strike of 1919. Last month, a total of approximately 200 stevedores left their jobs without warning. The walkout soon failed and the longshoremen's union in San Francisco stated that it had nothing to do with the strike which was being carried on by outsiders. On Sept. 5, the members of the Pacific American Steamship association and the Ship Owners of the Pacific at a joint meeting refused the demands of the unions.

Pacific coast custom collections for



the first seven months of this year totaled over \$14,000,000. The port of San Francisco led with \$7,218,330.62, Washington ports second with \$3,161,911.74 and Los Angeles third with \$2,083,728.86.

In the nine months ended in March, 1923, San Francisco's imports amounted to \$134,770,975 as compared with \$15,527,483 imported by Los Angeles. Figures recently issued show San Francisco in fifth place as regards the value of exports which amounted to \$157,242,290

for the fiscal year ended June 30, 1923.

A resolution is now being drafted by a special committee appointed at the last meeting of the Pacific American Steamship association protesting against the operation of merchant marine vessels by the government.

A. P. Hammond, vice president and general manager of the new California & New York Steamship Co., has announced that the company will inaugurate a 14-day service between Atlantic and

Pacific ports with seven modern refrigerating ships. The new company, which was incorporated under the laws of Delaware with a capital stock of \$7,500,000, has as president C. S. Whitcomb, who is vice president of the California Fruit Growers' Exchange.

The Transmarine Corp., a subsidiary of the Submarine Boat Corp. of New Jersey, has announced that it will increase the number of vessels in its intercoastal trade from 13 to 20 within a short time.

## Along the Atlantic and Gulf Coasts

**FIGURES** for the intercoastal tonnage movement of the United States in the first half of 1923 indicate that Baltimore stands first in the westbound traffic, maintaining her position of the first quarter of the year. Baltimore's total westbound tonnage for the six months amounted to 482,433 tons. This was all general cargo. Eliminating oil, Baltimore stands second in eastbound cargo among the Atlantic coast ports.

Reports of the organization of the Ocean Fruit Express to carry perishable products from the Pacific to the Atlantic coast appear to indicate that Baltimore will be one of the east coast terminals. The Texas Transport & Terminal Co. has the exclusive Atlantic coast agency, this organization being represented in Baltimore by Wilbur F. Spice & Co.

The Baltimore-Oceanic Steamship Co. has assumed the agency of the American-Hawaiian line and abandoned its agency of the Dollar line. With the separation of the American-Hawaiian and the United American lines, the latter has entered Baltimore with a weekly coast to coast service of large tonnage vessels.

Grain exports from Baltimore during August amounted to only 1,463,354 bushels, the larger part of which was wheat. The same month in 1922 showed 8,364,020 bushels of exports. Flour exported in August amounted to 71,905 barrels as compared with 65,732 barrels in August, 1922. For the eight months ending with August, grain exports from Baltimore reached 35,577,779 bushels, while for the same period of 1922, the figure was 65,579,616 bushels. Flour exports stand at 326,068 barrels for eight months of 1923, against 269,226 barrels for 1922.

A new shipping partnership has been formed in Baltimore between Capt. Duke Adams, for the last four years superintendent at Baltimore for A. H. Bull & Co., and Gordon P. White, who has served for 16 years with the local office of Furness Withy & Co. The new firm will be agent for the Bull line, McAlister Bros., and Lykes Bros.

Both the Pennsylvania and Western Maryland railroads have lifted their embargo on oats for export, which leaves

no restrictions on grain via any route to Baltimore.

Contracts for widening and deepening the Chesapeake & Delaware canal to allow the passage of deep sea vessels have been awarded to the Arundel Corp., Baltimore, and the Atlantic Gulf & Pacific Co., New York. The contracts involve the removal of 6,000,000 cubic feet of earth at a cost of \$1,200,000. The Arundel Corp. section will involve \$300,000.

With the recent arrival of 10,250 bags of coffee at Baltimore on the steamer WEST KEENE, the import total for that commodity was raised to 99,739 bags, thus far in 1923.

In line with Baltimore's port development efforts the H. E. Crook Co. has accepted the offer of the city improvement commission of \$440,000 for the former's shipyard holdings on the McComas street development site. The tract has a frontage of 462 feet along the northwest harbor, and a depth of 1600 feet inland from the bulkhead. It gives the city a continuous waterfrontage at this point of about 3000 feet, and makes room for 2½ piers.

With her maiden cargo of 20,000 tons of ore from Chile, the new steamship CHILORE, the latest addition to the fleet of the Ore Steamship Co., has arrived at the Sparrows Point plant of the Bethlehem Steel Corp. The CHILORE was built at Baltimore and went to Chile to load her first cargo.

Exports of coal in August from Baltimore amounted to only 70,457 tons, in comparison with 239,929 tons in July. The August coal went out on 18 vessels to 11 foreign countries. Italy was the largest buyer. Shipping activities at Baltimore in the foreign trade for the month of August declined somewhat under July. Overseas entrances for August numbered 56 of a net tonnage of 154,274, while clearances reached 39 vessels of 100,327 tons. These are the smallest figures for foreign shipping at Baltimore since March of this year.

The Dutch steamship GEMMA of 5337 net tons set a new wheat cargo record

during the month of August when she departed from Galveston with 424,000 bushels aboard. The entire amount was loaded at the Southern Pacific elevator for the account of the Rosenbaum Grain Co. and was destined for Rotterdam. The previous record was established by the Italian steamship EMMANUELE ACCAME of 5796 net tons in 1922 when she carried 422,356.50 bushels from Galveston to Genoa, Italy.

The American steamship LAKE GADSDEN, now under bareboat charter to the Lykes Bros. Steamship Co., Inc., Galveston, limped into port Aug. 22. She had collided with the British steamship SAN VALEKIO at Vera Cruz on Aug. 1 and besides twisting her stem, had a large hole in her bow. A thorough survey was made while she was in drydock and bids asked for her repair.

Imports of sugar beet seed through the port of Galveston during the month of April, 1923, amounted to 2,840,046 pounds valued at \$260,880. During March, 660,000 pounds were imported. All sugar beet seed received there comes from Germany and the shipments have shown a gradual increase since importations were resumed after the war.

Exports from the district of Galveston during the month of June amounted to \$13,456,434. Cotton valued at \$10,759,209 was the chief commodity while 25,403 barrels of flour, 3,360,000 pounds of cotton seed cake, 2,204,024 pounds of rice, 10,203,799 gallons of fuel oil, 4,461,954 gallons of lubricating oil and 29,374 tons of sulphur were some of the other important items.

Upon the dissolution of the Columbia Transport Co., Galveston, Tex., B. M. Bloomfield, who was head of the company, accepted the position of traffic manager for Daniel Ripley & Co., with headquarters in Houston, Tex. Daniel Ripley & Co. plan to handle a large volume of business out of both Houston and Galveston during the present cotton season.

Julian Platon, who has been connected with E. Sevilla & Son, steamship agents, since Jan. 1916, as manager of the flour department, resigned to accept a position with the Houston Mill & Elevator Co. on Sept. 1.

# World Safety Standard Is Near

Survey of Activities of Various International Committees Shows  
Steady Progress Toward Uniform Loadlines and Safety Rules

BY SIR WESTCOTT ABELL

THE ship was one of the first of man's works, and from the earliest history the risks attendant upon sea travel have occupied man's attention; not only has this been so, but when forms of settled government began to emerge, the importance of rules to govern sea trade was at once recognized. At the beginning of the Christian era, if not before, the trading community of the island of Rhodes set up a code of sea laws, known as the "Rhodian Sea Law." The Romans, great lawmakers though they were, accepted these laws without modification when they conquered the island, and they were afterwards incorporated in the Justinian code—the basis of our modern legal system. There is abundant evidence, too, that the great trading republics of Venice, Genoa, and Sardinia (circa 1000 A. D.) laid down and enforced a series of most detailed laws for the loading and construction of ships and for the carrying out of trade. The laws of Sardinia, in particular, required the painting on a ship's sides of a loadline mark—a white circle—almost identical with the mark in general use today. Later still, the Hanseatic League set up similar sets of decrees for the conduct of its own traders, which were enforced until the opening of the ocean routes of the world, as distinct from the old headland-to-headland coasting tracks robbed the league of its power.

With the discovery of America and the consequent rapid expansion of trade, nations rather than communities of traders began to adventure overseas, and so, in their turn, nations began to set up systems of sea laws and to incorporate them in the civil law of their country.

## Freedom of the Seas

The opening up of the trade routes, and the ensuing race for world trade supremacy, led to national animosities which culminated in a series of conflicts in which country after country claimed the "freedom of the seas." It was left to experience, bitterly bought, to teach the world that freedom of the seas is an international necessity, and that the freedom of the seas involves freedom both of ship and of access to trading

ports. Nor was this all; the stern teachings of experience made evident the fact that, despite the machinations of national diplomacy, any national flag, however, powerful politically, could not render any aid to the ship when the testing storm sought to prove it—in that day, careful design, honest workmanship and skilled operation could be the only safeguards.

## Need For International Understanding

Thus came about the gradual realization by the shipping industry of the need for international understanding, and the belief that it should be possible for those engaged in shipping to frame a standard of conduct which would be fair to all communities taking part in the international industry of sea trade. For a long time the political machinery of the various countries interested in maritime affairs was used to further this ideal. A good deal of work was done by the International Law association and the Comité Maritime International, mainly in connection with legal, financial and trading liabilities, and even, incidentally, in reference to the question of loadlines as affected by deck cargoes. The greatest measure of agreement reached prior to the war (that in regard to tonnage regulations), was, however, the result of action by the various governments. With the exception of the Suez and Panama canal regulations, tonnage measurement throughout all maritime countries came to follow closely the British practice.

Government action, too, was responsible for the degree of uniformity obtained in regard to freeboard matters, and in this respect the conflict between the German and British national laws will not be forgotten. Considerable political pressure was necessary before it was found possible to obtain an agreement between the two countries on this question; but the difficulties were overcome, and the freeboard tables made approximately equivalent.

It was apparent, however, that an internationally recognized code of regulations applicable to overseas trade was necessary; and the great convention called in London after the TITANIC disaster led to the idea that it would be desirable to hold an international conference on the question of loadline. The committee appointed for that

purpose reported to the British board of trade in December, 1915. The war, however, put a stop to the furtherance of these discussions, and the time of the various governments has since been so occupied with what may be termed "political" conferences that it appeared there would be no chance for attention to be given to the preparation of international ship regulations.

It was in these circumstances that the Chamber of Shipping of the United Kingdom and the Liverpool Steamship Owners' association came to the conclusion that the time was ripe for the shipping community itself to take some direct part in the matter, and, at their invitation, an international conference of shipowners was held in London in November, 1921.

This conference, which is of historic importance, had for its motive the examination and discussion of the various phases of sea activity. Several committees were appointed, some to deal with legal matters, some to deal with trade conditions, and others to deal with the ship herself. It is of these latter committees (with which the writer was more intimately connected) that some account will be given, in order that the great progress which has been made in these matters may be fully appreciated, and in order that the manner in which some of the results were obtained may be explained in a broad way.

## Loadlines For Cargo Vessels

It seems desirable to recapitulate briefly the modern history of the subject. In the early part of last century, Lloyd's—and, later, other underwriting associations in England—made empirical rules for the assignment of freeboard, but it was not until 1870 that there was any great public agitation in Great Britain with regard to unseaworthy ships. In that year Samuel Plimsoll, whose name will be forever associated with this question, raised a storm of popular protest by his extravagant allegations.

Lloyd's Register was early associated with the subject. In 1875 the society endeavoured to formulate a system of freeboards, and in 1882 definite tables were issued, practically concurrent with rules produced by the British board of trade.

The first British loadline committee issued a report in 1885 containing tables for maximum loading which were large-

A paper read at the August shipping conference in Gothenburg, Sweden. The author, Sir Westcott Abell, is chief surveyor of Lloyd's Register of Shipping.



ly based on the proposals of Lloyd's Register. The merchant shipping loadline act of 1890 made the marking of loadlines compulsory, and a subsequent act of 1906 required all vessels using United Kingdom ports to be subject to the same regulations as British vessels.

The 1885 rules were adjusted in 1906, and from that time onward British, French and German regulations were practically in agreement.

While at the present time many nations are in accord with these regulations, yet Norway still allows a somewhat smaller freeboard for small vessels, and in spite of many efforts the United States has not yet passed an act making compulsory the marking of a loadline.

A special committee appointed by the board of trade to formulate freeboard regulations suitable for international application reported in 1915, and it is the report of this committee, consideration of which was suspended during the war, which was the basis for the work of the committee of the International Shipping conference appointed to deal with this question.

The freeboard regulations as originally formulated seem to have embodied the following premises:

- (a) The provision of a certain reserve of buoyancy which increased up to a higher limit as the size of ship increased;
- (b) The maintenance of a sufficient "height of platform" at the bow and at the navigation position; and
- (c) The provision of a certain structural strength.

#### Favored Classes

The board of trade committee reviewed the whole of the experience obtained since detailed freeboard regulations had been in operation. They found that favored treatment had to some extent been accorded to certain types, for example, the shelter deck and well deck vessels, to the disadvantage of equally seaworthy classes, such as the "three-island" ship. These concessions in the case of shelter deck vessels seemed to have arisen mainly by giving allowances for the buoyancy of spaces which were exempt from tonnage measurement, and the committee proposed regulations which reduced the buoyancy allowance for spaces which by law were regarded as open to wind and weather. They also proposed adjustments to the allowances for superstructures which gave a better height of platform at the desired places and which varied with the degree of protection which the superstructures gave to the vessel considered as a whole.

In order to provide for the third point in freeboard assignment—"a standard of

structural strength in relation to draft," an exhaustive examination was made of the requirements of the various classification societies, Lloyd's Register of Shipping, the Bureau Veritas, the British Corp., and the Germanischer Lloyd, who co-operated in this work. As a result, formulas were prepared for the determination of longitudinal and transverse strength in relation to dimensions and draft, as well as for the thickness of side plating in association with the spacing of frames. By this means it was possible to apply four tests which would indicate whether the general arrangement of the structure was sufficient for the geometrical draft.

The board of trade committee considered that it was most important to insure that all openings in the decks and sides of vessels should have proper means of closing, in order to maintain the buoyancy of the vessel, as the ordinary freeboard regulations were not concerned with the internal subdivision by bulkheads.

#### Committee's Conclusions

The committee examined the existing freeboard tables in the light of past experience, and of their proposed modified allowances for superstructure. They produced a set of tables which gave directly the freeboards for flush deck vessels of standard proportions, and the allowance for such vessels when the uppermost deck was the top of a complete superstructure. The figures contained in these tables were arranged so that in standard vessels the actual freeboards were in agreement with previous practice; this, of course, meant some increases in special types which previously had been given more favored treatment.

The international shipowners' committee in dealing with these various points came to the conclusions that:

- (a) The freeboards for flush deck vessels were generally acceptable, but might perhaps be still more increased.
- (b) The freeboards for shelter deck vessels with tonnage openings should be maintained at the same figures as formerly. The disparity between "tonnage" and "freeboard" requirements was not due to unsatisfactory freeboard assignment, and it was the "tonnage" regulations which required modification.
- (c) The standard height of superstructures forward of amidships should be increased.

(d) While the proposed standard of strength might generally be acceptable (it was pointed out that the new Japanese regulations had adopted the standard practically in its entirety) yet some opinion was expressed that the recognized authorities might be allowed to set up their own standards.

(e) The reductions of freeboards permitted for summer seasons in relatively small areas, such as in the Indian ocean, might be extended to other parts of the world which experienced similar climatic conditions.

(f) The freeboards for sailing ships should be determined by the steamer rules, such an addition being made as would maintain existing practice for such ships.

(g) Some attempt should be made to devise a physical determination of a steamer in such a way as to permit of a grading between the sailing ship and steamer freeboards. It was suggested this definition should be based upon a relation between horsepower and displacement.

The international committee considered that the first step to be taken toward official acceptance was to forward the report in its entirety to the British board of trade and to suggest that the views expressed therein might be taken into consideration in any proposed modification of the freeboard regulations. The statutory committee which advises the board of trade on these matters has been asked to give consideration to the report, and their conclusions may be expected before very long. While it is not possible to forecast these conclusions, it can safely be said that the report of the shipowners' committee has been of invaluable help to the British government, and that every consideration has been given to the results of experience which the report contains.

#### Carriage of Deck Cargoes

This subject is of particular interest to Scandinavians who have made a very special study of it, and whose experience, particularly in regard to the carriage of light wood goods, has been unique and—what is more—satisfactory.

It may be of interest to point out from the particulars available of the distribution in 1922 of Swedish wood goods, that 37½ per cent of the exports were taken by the United Kingdom, and another equal amount by France, Holland and Belgium together; of the remainder, Denmark, Norway and Germany took 12½ per cent and other countries the balance of 12½ per cent. These figures were much the same in prewar days except that Germany took a much bigger share before the war. It might also be pointed out that Great Britain takes 50 per cent of the Swedish wood goods which are carried in vessels trading outside the Baltic.

As an illustration of the experience which has been obtained by Norwegian vessels in the carriage of light wood goods, it may be interesting to mention that the total losses which happened in that trade from 1906 to 1919 either from

the vessels being missing, having been sunk, or having been abandoned, were remarkably small. There were no losses whatever in nine of the years mentioned (1906, 1908, 1910, 1911, 1912, 1913, 1914, 1918, 1919), only one loss per annum

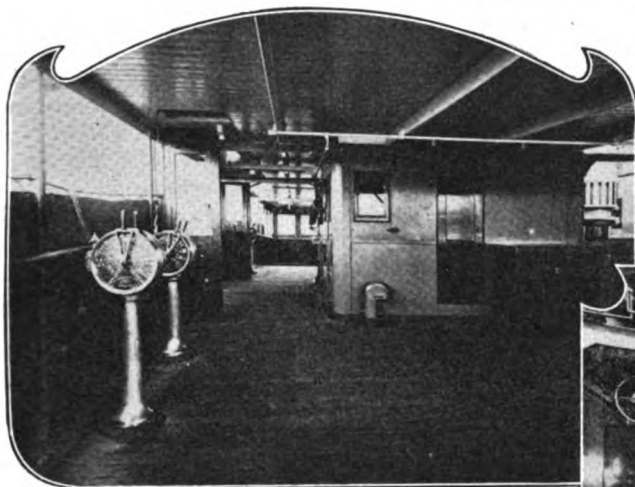
recognized that:

In certain cases where ships are specially constructed or specially fitted, for the carriage of wood goods, it might be contended from some points of view that timber-laden vessels could be

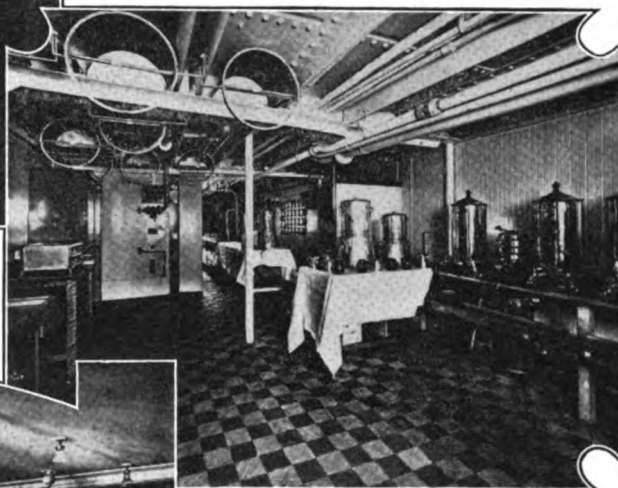
It will be seen that this committee recognized

(a) That there was an international need for regulations for the security of wood deck cargoes, but were not at that time prepared to

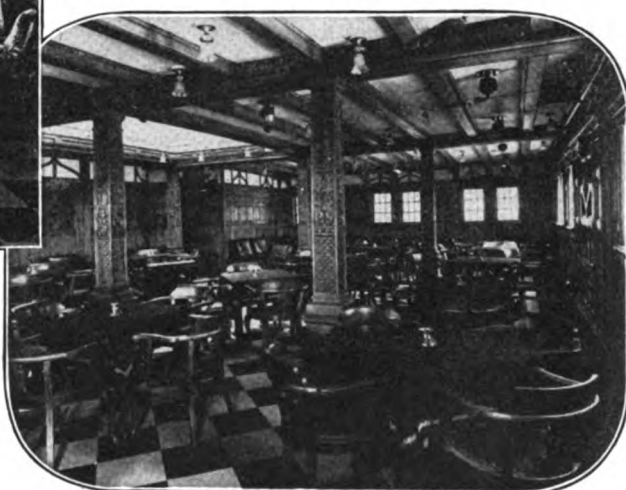
## Late Type of British Liner for Service to Orient



Views taken on board the twin screw liner *Moldavia*, 16,000 gross tons, of the Peninsular & Oriental Steam Navigation Co. She will complete in a few weeks her first year's service in Oriental trade.



She carries 397 first and second-class passengers, all accommodation being above the upper deck. The views show from top to bottom, the bridge, first saloon pantry, first music saloon and first smoking saloon.



in the year 1909 and 1916, and two losses per annum in 1907, 1915 and 1917.

To be candid, the British regulations which deal with this question have not been regarded by anyone as logical or reasonable. It would seem from a perusal of history that the question has rather been avoided than encountered. The British loadline committee of 1915

loaded more deeply than other vessels, provided it could be guaranteed that the special conditions required were fulfilled.

They reported that on the whole they were of opinion that it was not desirable to allow a special timber loadline, but laid down certain rules for the security of wood goods carried on deck.

admit that—

(b) Such security could be obtained as would enable vessels carrying such cargoes to have deeper immersion.

They were not, in short, satisfied with the regulations for security of such cargoes.

The international deck cargoes committee held its first meeting in Christ-



iana in February, 1922, and its second meeting in London, in April, 1923. The existing Norwegian rules were taken as the basis for discussion, and at the second meeting rules and regulations were finally completed for—

- (a) The carriage of light wood goods.
- (b) The carriage of heavy wood goods.
- (c) The freeboard allowances for both light and heavy wood goods.

In the first place, the committee was satisfied that the Scandinavian experience was in every way satisfactory, and could reasonably be extended. That is, they were of opinion that the regulations for the security of deck cargoes of light wood were sufficient to justify deeper loading, within limits.

Naturally, owing to the variation of physical properties of different classes of woods of the same name, it was found difficult to devise a definition which differentiated between "light" and "heavy" wood goods. It was, however, finally agreed that "light wood" shall be understood to be pine, fir, spruce, or similar light sorts of wood or wood goods.

The argument for deeper loading had for its basis the proposal that the allowance for superstructures of wood goods should be half that permitted for a similar fully enclosed steel superstructure, consequently it was necessary to require that for heavy wood goods the deck cargo must consist of squared timber of lumber of such dimensions as can reasonably be stowed into a solid deckload.

#### Security of Deck Loads

Dealing with the freeboard allowance, the committee consider that

- (1) The allowance for light wood goods should be one-half that for a corresponding steel structure.
- (2) The allowance for heavy wood goods should be 70 per cent of that given for light wood goods.
- (3) Any induction of freeboard should not exceed nine inches.
- (4) All vessels must have a forecastle and a superstructure protecting the deck openings to the machinery.
- (5) Hatchways, ventilators and other deck openings are to be properly protected.
- (6) The strength of the vessel must conform to the requirements for the highest class of a recognized classification society.

As to the security of deck cargoes, it is to be observed that the only limitations of height laid down were

- (a) The deck cargo must never be so high as to obstruct the outlook from the bridge; and
- (b) The height of "heavy" wood goods must not exceed eight feet above the freeboard deck in "winter."

The general conclusions of the committee were that:

- (a) The deck cargo should be supported by stanchions housed in deck sockets spaced not more than three meters apart.
- (b) Eyebolts should be attached to the main structure spaced not more than three meters apart.
- (c) All stanchions and eyebolts must be of adequate strength in relation to the height of deck cargoes.
- (d) There must be one efficient lashing for the deck cargoes up to the height of the superstructures, and
- (e) For greater heights of deck cargoes, there must be either separate lashings for that part above the height of superstructures in the cases of "light" wood goods, or additional eyebolts and lashings in the case of "heavy" wood goods.

#### Stability of Vessels

It was important to maintain in some way the necessary stability of the vessel during the voyage, and it was considered that the vessel should be upright, that is, without a list, on leaving a loading port, and that the arrangement of water ballast and stowage of cargo should be such as to provide a sufficient margin for adjusting the stability, or rather the condition of zero list during the voyage. In addition, attention was drawn to the necessity of supporting the deck from below in order to carry the deck load.

Various regulations were also formulated to protect the crew, the navigation, and the lifesaving appliance.

The procedure followed by the Chamber of Shipping in submitting these regulations to the board of trade was the same as for the loading for cargo vessels, but the difficulties of the British government in dealing with this phase of sea regulations are by no means light; for, contrary to the usual custom, it happens that the detailed regulations in this case are contained in the merchant shipping acts themselves, and to modify an act of parliament is not so simple a procedure as to modify regulations which give effect to a principle contained in an act.

However, the British Board of Trade are fully alive firstly to the importance of the question, and secondly, to the difficulties of procedure, and will no doubt afford every opportunity for fair consideration to be given to the case. It is, moreover, distinctly encouraging to note that the international labor bureau of the League of Nations has resolved to support the proposed legislation without qualification.

The third phase of the loadine question resolves itself into a consideration

of the additional protection which it may be deemed desirable to give the vessel when the carriage of passengers begins to be an important part of the work of a particular ship.

The mere statement of "additional protection," without qualification, seems itself to be a contradiction in terms, not because travel at sea compares unfavorably with land traffic in respect of accidents, but because a greater measure of protection—passengers being regarded as "light and bulky" cargo—is economically possible in a passenger vessel as compared with a purely cargo ship. This was the view of the problem taken by the convention for the safety of life at sea, which associated the provision of safety with the nature of the service of the vessel.

The basis of consideration, which was before the international subdivision committee, was the convention, the work of the British bulkhead committee, and the reports of the joint committee of the Liverpool Steamship Owners' association and of the Chamber of Shipping which had been at work since 1916, endeavoring to show the British board of trade that the regulations issued under the convention did not pay sufficient regard to the economic conditions of passenger overseas traffic.

#### Study Passenger Vessels

The international committee concerned themselves primarily with three broad questions:

- (a) The standard of subdivision required for vessels which carried more than 12, but not more than a relatively small number of passengers, that is, for vessels in which the cargo function was dominant. 1.
- (b) The standard of subdivision for vessels in which the passenger function was dominant and the cargo carried was very small or almost negligible. 2 and
- (c) The preparation of a definition which differentiated gradually and continuously between vessels in proportion as the passenger function grew at the expense of the cargo function. 3.

It is of course well known that the convention standards of subdivision were primarily based on the German experience, which for historical purposes it may be desirable to summarize briefly in a form which compares with the actual phraseology of the convention.

1—In the convention, this standard of subdivision was known as curve B; the committee produced a standard called by them curve B1.

2—The convention standard for purely passenger vessels was known as curve C.

3—The convention called this definition "criterion of service," which was



left for further study by the bulkhead committee and by other nations.

Length of Vessel.	FACTORS OF SUB-DIVISION CONVENTION.				
	Cargo Fast		Curve B.		Curve C.
Ft.	Pas.	Pas.			
Up to 330	1.00	1.00	1.00	.97	1.00 to .76
330 to 390	.88	.85	.97	.86	.76 to .62
390 to 490	.78	.60	.86	.65	.62 to .50
490 to 590	.53	.48	.65	.48	.50 to .44
Over 590	.42	.42	.48	.34	.44 to .34

\*At 900 feet.

Comparing these tables, it will be seen that:

(a) The requirements throughout were at least as exacting, and in the ma-

(b) For vessels carrying mainly cargo with a small or "nominal" number of passengers, the curve B was too exacting, and should be adjusted so as to provide a length of cargo hold of 80 feet in the forward part of the vessel for ships of about 440 feet in length and over. 1

(c) The "criterion of service," which measures the passenger function of the ship, should be based upon; 2

(i) The permeability of the vessel below the bulkhead deck, subject to

two bow compartments to a three-compartment standard for the first three compartments, as the length and passenger service increases.

The committee made other recommendations with the hope of obtaining simplicity and equality of treatment; and it felt that it would be possible in the future to achieve greater ease of determination with equal accuracy of comparative treatment.

The results of the work of this committee have also been published, and are



WHITE STAR LINER HOMERIC TO BE CONVERTED WITHIN A FEW WEEKS FROM COAL TO OIL BURNING BY THE INSTALLATION OF AN AMERICAN TYPE OF OIL BURNER

jority of cases more exacting, than German practice; and

(b) Whatever the length of the vessel, whereas the maximum German requirement was 0.42, or a good two-compartment standard, with a 16 per cent margin, yet for vessels over 590 feet in length the convention gradually increased the subdivision up to nearly a three-compartment standard at 900 feet.

#### Cargo Vessels

As regards cargo-passenger service, it might be said at first glance that there was fairly close agreement, but the figure shows that owing to the grading of the German regulations vessels between 400 and 500 feet in length are severely affected, and it is vessels of such lengths that are most concerned in the cargo-passenger service.

A large amount of research work has been carried out in Great Britain to attempt to achieve a reasonable balance between safety and economic requirements, and the international committee, with full knowledge of this work, laid down certain broad conclusions:

(a) For vessels which may be described as "full-passenger" the curve C of the convention should be adhered to up to 550 feet in length, after which safety requirements were reasonably met by the provision of a two-compartment standard with a 10 per cent margin, that is, a factor of subdivision of 0.45.

(ii) A correcting factor based on the total number of passengers carried, in order to take account of the variation in space allowance per passenger and in the distribution of accommodation.

(iii) The correcting factor should be derived from a standard allowance—called "specific volume"—per passenger.

(iv) Where the total number of passengers multiplied by the specific volume per passenger exceeded the volume set apart for passengers below the bulkhead deck, then the criterion was to be determined by the total "specific volume" of the passengers.

(v) That a vessel which did not carry 12

more than — passengers should only 1000

be required to comply with the curve B1 after adjustment ("L" being the length of the vessel in feet).

(vi) That vessels carrying more than 12

—passengers should comply with re- 1000

quirements intermediate between curves B1 and C, in proportion to the actual value of the criterion of service.

(vii) For the curves B1 and C the criterion values shall be constant, and preferably the difference in criterion values for curve B1 and curve C shall be so adjusted as to be 100.

(d) That the bows of vessels shall receive additional subdivision varying from a two-compartment for the first

under consideration by the British board of trade who are likely to come to a decision very shortly after interviews with the British representatives of the international committee dealing with the subject.

1—German opinion considered their trades did not require so great a length as 80 feet. Japan required over 80 feet.

2—The French members dissented entirely from this definition.

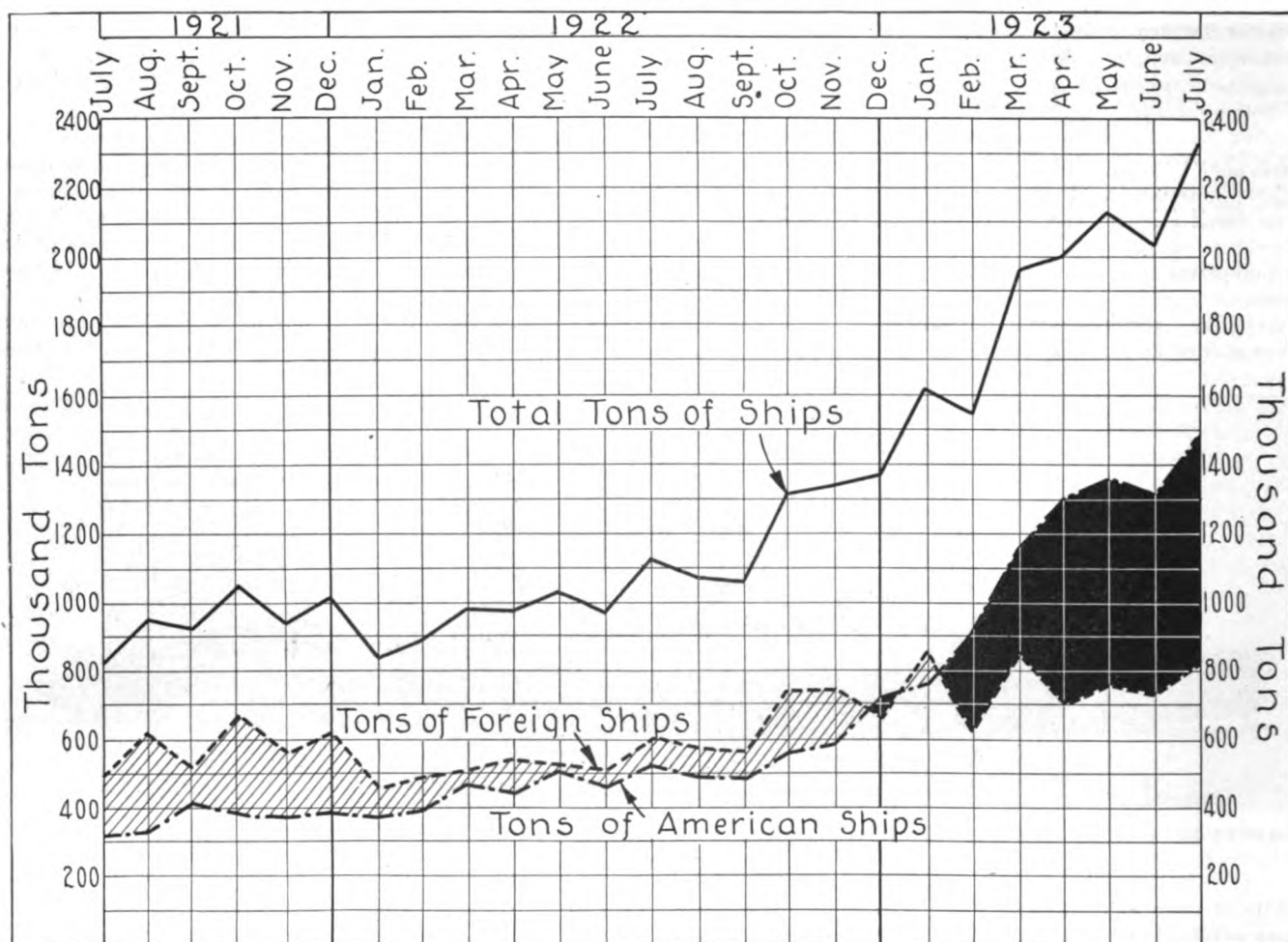
#### Future Work

This short account of the work of these international committees is not by any means complete, nor is it possible to say anything about the labors of the committee which dealt with life-saving appliances and wireless telegraphy—both of which have been examined and to some extent adopted by the British board of trade.

But this account, short as it is, does record a great advance toward international understanding between the nations engaged in world maritime trade, and it may be interesting to recount some of the experiences gained at the various meetings.

As a general rule, it was found preferable to discuss the subject under consideration in its historical aspect, and to use as the basis for discussion the latest pronouncements and investigations which were available. Various representatives would then recount their experience in the particular phase of sea





FOR THE PAST SIX MONTHS, MORE AMERICAN VESSEL TONNAGE HAS USED THE PANAMA CANAL THAN ALL FOREIGN FLAG TONNAGE COMBINED. THE CHART ABOVE SHOWS THIS GRAPHICALLY, THE BLACK AREAS DISCLOSING THOSE MONTHS IN WHICH THE AMERICAN VESSEL TONNAGE HAS RANKED HIGHER. INTER-COASTAL TRADE INCREASE, ESPECIALLY IN CALIFORNIAN OIL, HAS BEEN THE PRINCIPAL FACTOR IN OVERCOMING THE LEAD FORMERLY HELD BY FOREIGN SHIPS

activity under consideration, and would indicate the directions in which regulations were unduly restrictive, and in which new or further regulations should be made, having due regard to economic requirements. In short, an endeavor was made to formulate a proper standard for the safe conduct of maritime transportation on the part of the committee, and later to embody this standard of conduct in such regulations as could be administered by the competent authorities.

The next step in procedure which has been adopted by the British representatives is to place the reports and proposed regulations before the board of trade, with the endeavor to obtain immediate adoption of these regulations. It is understood also that a similar course is being followed in other countries, and already in Sweden and Denmark the governments have to some extent adopted the recommendations of the committee which dealt with the question of deck cargoes of light wood goods.

It must not, of course, be forgotten in framing these regulations that the

civil laws of the various countries involved are to some extent and in certain directions founded on somewhat different bases, and probably the greatest difficulty in the way of the general acceptance of the reports of the various committees will be the necessity for some co-ordination of the civil law of the nations where these civil laws do not at present accord with the principles which have been found essential for the safe conduct of sea transport.

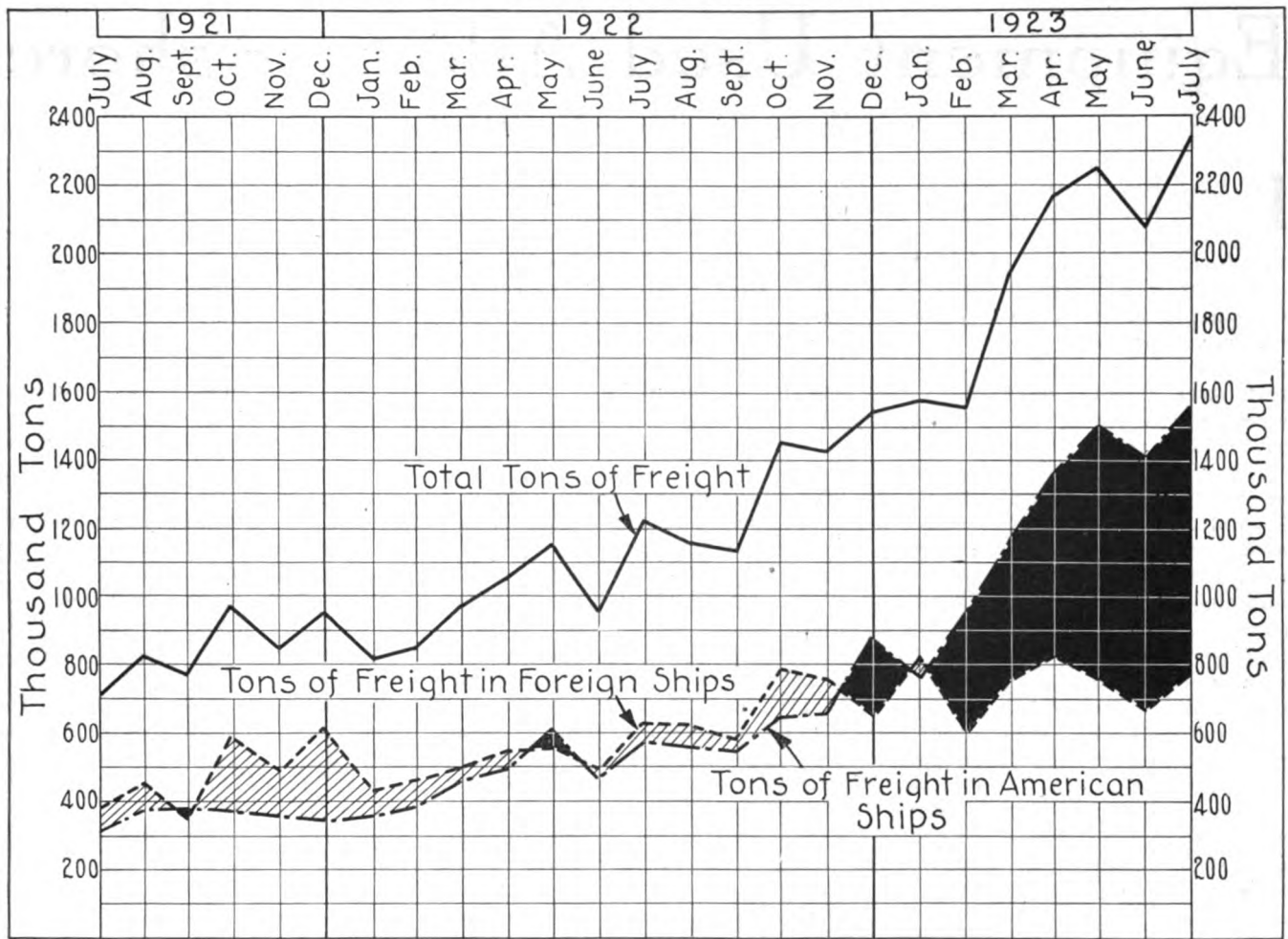
#### Application to Old Vessels

There is a further difficulty which can no doubt be overcome by the adoption of a suitable procedure during the interregnum period in which the new regulations are being substituted for the old, and that is in regard to the application of the new rules to old vessels. It will, of course, be argued that if new vessels are allowed concessions in any particular direction, such concessions would equally apply to old vessels. It will, of course, be admitted that it is easier to take account of additional restrictions in new ships, but it will certainly be argued that such are unnecessary to

old vessels, seeing that they have proved themselves always, and in every way, satisfactory. It must not, however, be forgotten that in any straightening out process such as has been followed by the various committees to whose work reference has been made, there must, of necessity, be some penalties as well as some concessions if the general average of sea experience is to be maintained, because, as everyone knows, concessions for various reasons have been made from time to time in different directions.

It will be seen, as already stated, that the work which has been carried out is of fundamental importance to the world in general. What, in effect, is being attempted is to remove all possible misunderstanding among those engaged in overseas international trade, and thus to afford equality of opportunity for all sea traders, irrespective of flag, so long as the regulations accepted by universal agreement are complied with by all engaged in that trade.

The procedure which might be followed in all such attempts at self-government within the industry is for a



IN 9 OF THE LAST 25 MONTHS OF PANAMA CANAL OPERATION, AMERICAN VESSELS HAVE CARRIED MORE FREIGHT THAN FOREIGN FLAG SHIPS. ACTIVE INTERCOASTAL TRADE HAS GIVEN THE AMERICAN VESSELS SUPERIORITY IN EACH OF THE LAST SIX MONTHS. THE BLACK AREAS SHOW THE MONTHS IN WHICH AMERICAN SHIPS HAVE CARRIED MORE THAN HALF THE FREIGHT PASSING THROUGH THE CANAL

convention to be accepted internationally and its provision included in the civil law of each of the contracting nations. In that way the sea trader who violates the international agreement will be liable in the civil courts. But even should it not be possible to arrive at an international convention, or should any countries deliberately abstain from participating in the agreement, in the hope that their sea traders may reap an advantage, yet inevitably and in the long run those who do not conform to the agreed standard of sea conduct will find themselves shut out of international trade by the inexorable working of economic and commercial forces.

The sea industry is therefore making a wise endeavor to discipline itself, and the general acceptance by the many nations which took part in this work of regulations to which they have agreed will be a milestone in the progress toward that universal understanding which lies at the root of world stability. And no record would be complete without an appreciation of the high spirit and lofty purpose which animated those who took part in this work—the mere

drawing up of regulations is one thing; the spirit to carry them into operation is the essential thing.

### U. S. Ships Are Leaders in Panama Trade

The effect on American shipping of the great increase in intercoastal trade in the past few months is clearly disclosed by the accompanying charts. These show the total vessel tonnage passing monthly through the Panama canal in the past two years, divided also between American and foreign flag vessels, and the same records for tons of cargo carried in these ships.

Study of the charts reveals that the advantage held for a long time by foreigners was greater in vessel tonnage than in freight tonnage carried. The period of foreign advantage is indicated by the shaded areas, of American leadership by the black areas. As shown by the relative height of these areas, American vessels have consistently been carrying a higher percentage of freight than foreign flag ships.

### Pittsburgh River Traffic

Freight tonnage moved on the rivers in the Pittsburgh district during August amounted to 3,023,820 net tons. This is a gain of 352,881 net tons over the July total, when 2,670,939 net tons were carried. In August last year, the movement was only 1,088,235 net tons, the coal strike accounting for the small total. The August record follows:

	Allegheny river short tons	Monongahela river short tons	Ohio river short tons	Total
Coal .....	53,017	1,413,133	608,300	2,074,450
Coke .....	0	31,802	0	31,802
Gasoline ...	900	1,140	0	2,040
Gravel .....	134,935	115,386	129,192	379,513
Packet cargo .....	0	0	5,722	5,722
Sand .....	145,440	138,296	176,733	460,469
Steel prod-ucts .....	0	34,590	20,922	55,512
Unclassified.	8,493	3,818	2,001	14,312
Total ....	342,785	1,738,165	942,870	3,023,820

The schooner *Lucy R.*, reported sold through the Boston Ship Brokerage Co. to the Cleveland Museum of Natural History, Cleveland, is to be outfitted at New London for a two to five years research cruise in the South Atlantic ocean.



# Equipment Used Afloat, Ashore

## Feed Water Regulator—New Oil Burner

**I**N RECONDITIONING a vessel of such importance as the *LEVIATHAN*, every fitting and accessory selected must tend toward greater efficiency and safety. Further, it is essential that such accessories should be of the most modern type. For these reasons, a short description of the Aster-Anthony type of feed water regulator as fitted to the watertube boilers of the *LEVIATHAN* will be of interest.

This regulator which is manufactured by the Aster Engineering Co., Wembley, England, operates hydraulically, which method has been endorsed by many naval authorities and marine engineers as advantageous for the arduous duties of marine service. The designers of these regulators guarantee to control the level in a boiler within a maximum variation of half an inch.

Several cases have arisen where the regulators have been installed aboard ships carrying the boilers placed athwartships and it will be realized that it would be practically impossible to steam these ships without an efficient and reliable regulator. The difficulty is of course emphasized when one realizes that the ships in question

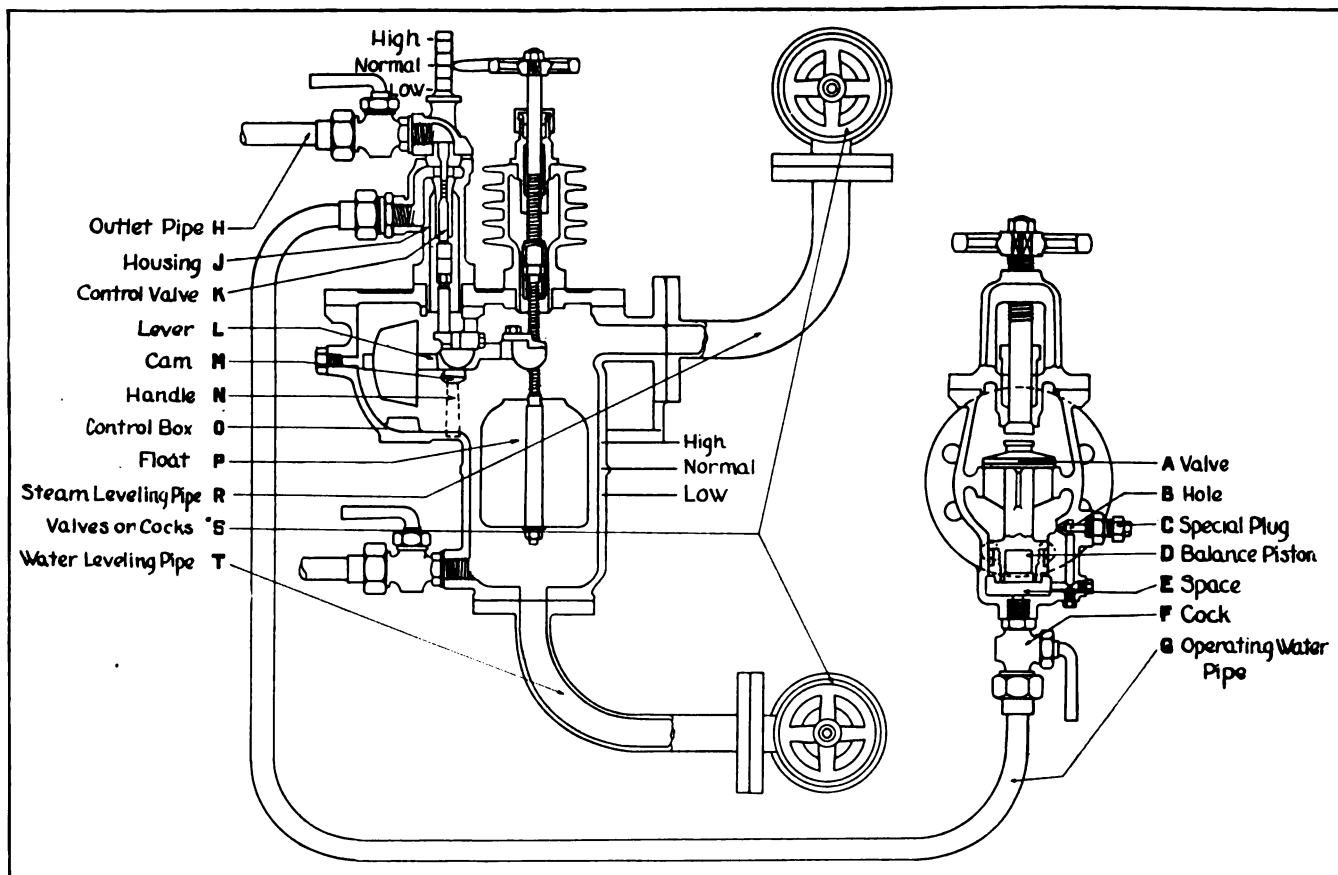
are probably one-eighth the size of the *LEVIATHAN* and subject to a great deal more movement than she will ever experience. The manufacturers have been able to give the necessary guarantees in regard to performance to enable these regulators to be included in the new Scott Still engines which are being built for Messrs. Holts.

In this regulator, no additional valve for regulating the feed water admission need be used, as the special valve provided with the apparatus is in itself a check valve, automatic in action, and can, when desired, be fitted with an isolating valve, thus forming a complete feed check unit. This valve *A*, as illustrated, is fitted with a balance piston *D*, and the feed delivery pressure acts equally upward on the valve and downward on the balance piston. In addition, the full boiler pressure is acting downward on the top of the valve, which is, therefore, tightly closed. But a small quantity of water is continually passing by way of the small hole *B* in the special plug *C* to the space *E* underneath the balance piston, and as long as this is allowed to escape the check valve remains closed. If, how-

ever, it is prevented from escaping as, for instance, by closing the cock *F*, the water instantly fills the space *E* and exerts the same pressure underneath the piston *D* as above it. Piston *D*, therefore, becomes balanced and inoperative and the feed delivery pressure raises the check valve and the feed water enters the boiler in the usual manner. As soon as the water is allowed to escape from space *E*, the check valve again closes, slowing down the feed pump which continues to crawl, by-passing the small quantity of water passing through the hole *B* in plug *C* until the flow of the water is again interrupted.

The control of the escape of this small quantity of water, therefore, constitutes a complete hydraulic control of the check valve.

The above description explains the fundamental difference claimed for the hydraulic system since it is not necessary to control the whole volume of water entering the boiler, but only the small quantity passing through hole *B*, about 1 per cent of the total feed. The water escaping from the space *E* is led by means of the pipe *G* to the control box *O* situated at the working



METHOD OF OPERATION OF FEED WATER REGULATOR AS INSTALLED ON THE *LEVIATHAN*



level of the water in the boiler, and attached to the latter by the steam and water leveling pipes *R* and *T* provided with valves or cocks *S*, so arranged that the water level in the control box always stands at the same level as that in the boiler.

The control box contains a float *P* which rises and falls with the water in the boiler and operates the control valve *K* contained in the housing *J* to which is attached the inlet operating water pipe *G*.

As the water level rises, the float rises, opens the control valve *K*, the operating water escapes, and the check valve closes. When the water level falls, the float falls also, closes the control valve *K* and the check valve opens, admitting feed water to the boiler.

The operating water, after it has passed the control valve, is led away by means of the outlet pipe *H* and carried back to the feed supply tank, hot well, or feed pump suction, none being lost.

A handle *N* is provided for moving the float up or down in the box if desired, to test its working; it is attached to a cam *M* which tilts the float lever *L* when moved right or left. When in the central position it is out of action. The check valve is fitted with a cock *F* by means of which the operating inlet pipe *G* may be closed so that no water can escape. The closing of cock *F* instantly shuts off the regulator and converts the automatic check valve into an ordinary hand regulated check.

## New Oil Burner Supplies Own Air

**S**INCE the first introduction of oil as fuel under boilers, attempts have constantly been made, based on the latest scientific knowledge of combustion and the most complete practical experience, to increase efficiency, simplicity, safety and dependability of oil burners for stationary and marine practice. As a consequence, a rapid and high development has been made toward mechanical perfection in such devices. The marine industry is indebted for this development mainly to the manufacturers of oil burning equipment among whom competition has been the spur for the improvements made.

This article is for the purpose of describing the latest type of mechanical atomizing oil burner built, and recently installed in a number of ships, by the Babcock & Wilcox Co., 85 Liberty street, New York. But, before going to this description it may be worth while to recapitulate here the essential fundamental factors for efficient and successful burning of oil.

The furnace of a boiler must be suitable for burning oil, by which is meant that its shape and size must be such that the flame from the burner does not come in direct contact with the surface and it must give a maximum percentage of volume effective for combustion. The volume of a furnace will determine the maximum quantity of oil that can be burned and will also have an important effect on the rate of combustion. Furnace volumes for the same power are generally much larger in stationary than in marine burners. The United States navy for its own requirements has set the limit of 10.8 pounds of oil per cubic foot of furnace volume. This is considered conservative and in merchant practice some installations have burned 15 pounds and over of oil per cubic foot of furnace volume while still maintaining good efficiency.

Air is, of course, necessary for com-

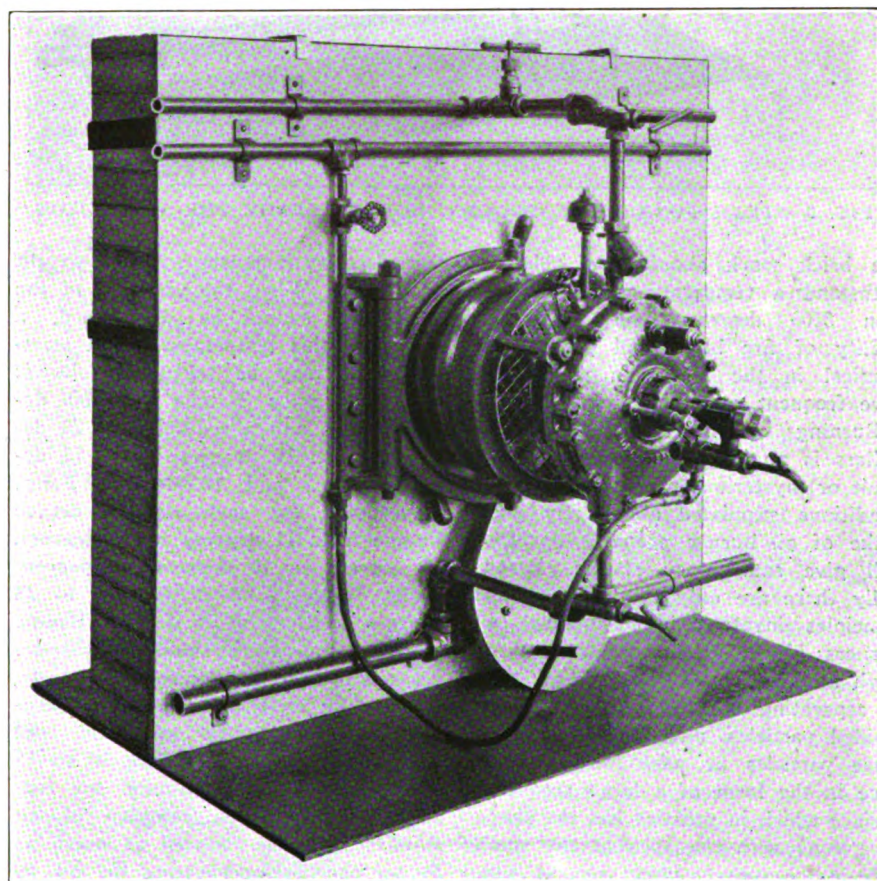


FIG. 1—STEAM CONNECTION MADE, BURNER READY TO OPERATE

bustion, and though there is some variation, corresponding to the composition of the oil, in the amount of air necessary, investigations indicate 14 pounds of air per pound of oil as a fair approximate estimate. Since ideal conditions of combustion do not exist in practical installations an excess of air must be supplied. This excess should be limited to a minimum without smoking and will vary under average conditions up to 25 per cent. Where air ducts are used allowance must also be made for leakage in the ducts and at the furnace so that for conservative estimate under such conditions, about 26 pounds of air equiv-

alent to 300 cubic feet at 60 degrees is needed per pound of oil burned.

Oil fuel may be burned with entirely satisfactory results using natural draft. For the high boiler capacities which can be obtained with fuel oil, however, it is necessary to provide some form of induced or forced draft. The stack or funnel area may be somewhat less for oil than for coal and one authority recommends one square foot per 200 pounds of oil burned per hour using natural draft and the same amount per 300 pounds of oil burned per hour using forced or induced draft. On account of the high temperature in furnaces burning oil,



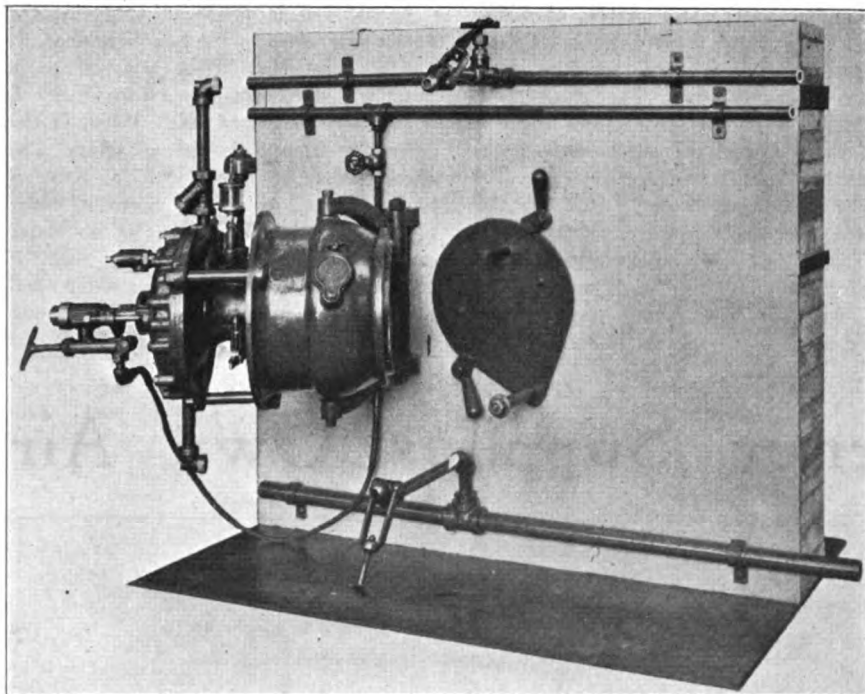


FIG. 2—STEAM CONNECTION BROKEN, BURNER READY FOR INSPECTION

the brick work should be able to withstand a temperature of not less than 3100 degrees Fahr. A high quality of fire brick will prove economical in the long run as it will save frequent rebuilding.

Burning oil in the furnaces of boilers is no longer an uncertain, difficult or mysterious process. With the conditions stipulated above any good make of oil burner properly operated will give satisfactory results. Essentially there are only two fundamental principles involved in mechanical oil burners: First, the complete, thorough atomization of the fuel oil, that is, separating the oil into very finely divided particles, and the spraying of these particles or mist into the furnace in the form of a large area thin surface which in practice has the shape of a cone with the apex at the small hole in the sprayer plate; second, supplying the correct quantity of air at exactly the right point and so directed that it will mix intimately and thoroughly with the fine oil mist which emerges from the burner tip.

In practical operation, several important factors develop in the successful and economical burning of oil fuel over which the engineer in charge must exercise intelligent supervision based on his experience and the results obtained for that particular installation. These are the reduction to the proper point of the viscosity of the oil by heating the oil to a sufficient temperature, carrying a uniform pressure on the oil line, and the regulation of the air supply.

The temperature necessary for cor-

rect viscosity increases with the weight of the oil. When the viscosity of the oil in use cannot be determined, a guide for this temperature as a starting point may be taken as follows: for 11 degrees Baume oil—300 degrees Fahr. and a reduction of 20 degrees Fahr., 10 degrees Fahr., 15 degrees Fahr., and 10 degrees Fahr., respectively for each rise in degree Baume from 11 degrees to 13 degrees, 13 degrees to 16 degrees, 16 degrees to 22 degrees, and 22 degrees to 28 degrees, so that for 28 degrees Baume oil the temperature should be 80 degrees Fahr. The engineer should determine by trial the lowest temperature for satisfactory operation and then maintain a temperature 10 to 15 degrees above this minimum for regular operation. The capacity of an atomizer may be reduced as much as 20 per cent by overheating the oil, as less oil by weight is forced through under such circumstances for a given pressure.

The oil pressure should be kept steady at the amount necessary for the steam demand. This is accomplished with reciprocating pumps by the use of an air chamber in the oil line. It is extremely important to regulate the amount of air properly to suit good combustion. Lack of sufficient air may cause pulsation in the furnace and heavy black smoke will be produced, decreasing the efficiency of the boiler and depositing carbon. On the other hand, an excess of air will reduce the boiler efficiency even more seriously as much of the heat will be carried up the stack. With

a great excess of air, combustion will not be complete, a white smoke will be given off, with heavy deposits of carbon in the furnace.

Any engineer in charge of a particular oil burning installation whatever his previous experience should make himself thoroughly familiar in detail with the instruction issued by the manufacturer and should also avail himself of the experience of the manufacturer's engineer representative. With proper oil burning equipment and careful supervision on the part of the engineer in charge, a definite economy in fuel is certain to result.

In the mechanical atomizing oil burner shown in the accompanying illustrations, recently placed on the market by the Babcock & Wilcox Co., a daring and novel departure from the usual type is evident in one of the two fundamental principles of an oil burner, that is, in the method of supplying air for combustion. The accompanying illustration, Fig. 1, shows this burner in its operating position with steam and oil lines connected. Under the burner may be seen the brick tile plug ready for closing the furnace opening when the steam and oil lines are disconnected and the burner swung away from the furnace. Fig. 2 shows the burner swung away from the furnace front for inspection and the brick plug in place effectively preventing the passage of air from the furnace.

This burner is called the Mayflower design, as the first installation was that on the President's yacht. As shown in Fig. 3, it consists of the main casting with bladed cone, and a hollow shaft turbo-blower attached to the main casting by three studs. The atomizer similar in design to that used in the other burners by the manufacturer, passes through the blower shaft with clearance, and is supported and adjusted in and out by means of two studs which carry the quickly detachable coupling and yoke. The end of the goose neck of the atomizer fits against a seat in this coupling and the atomizer is held securely in place by means of the yoke with a T-handle bolt at one end. The quick detachable yoke and coupling is similar to that in use on the other burners.

An impeller plate is secured to the bladed cone by means of lugs. In order to give quick access to the furnace, and for immediate insertion of the fire tile plug when not in use, the burner is carried in a yoke resembling a gimbal, hinged at the side, and may be swung away from the furnace in a moment's time. Steam connections to the turbine may be

quickly made and broken by means of a quick detachable yoke and coupling similar to that used for the oil connection. They are clearly shown with steam connections made and broken, respectively in Figs. 1 and 2. A short flexible hose is used for the oil line connection to the burner.

In this new burner, the atomization or the breaking up of the oil into a fine mist is done with exactly the same degree of success as that for other burners by the same manufacturer. The new and novel feature lies in the fact that for forced draft work this burner is designed to be a self-contained unit, each burner by means of its attached turbo-blower supplying its own air in any amount from a minimum to a maximum, thus eliminating all air ducts, double front construction about the boilers and the large blowers supplying the forced draft in such a system. Furthermore, as each burner is an independent unit, any number may be run without the loss of air sometimes found through dead burners with the double front construction.

The claim is also made that the steam consumption of a number of small turbo-blowers fitted directly to the burners will average less than that with one large central turbo-blower providing forced draft through ducts

is consumed. Also, it is pointed out that the losses of the air through leakage and friction in the ducts makes necessary a considerably larger initial supply than that required for the self-contained type. A higher oil burning efficiency can be maintained for the direct-connected blower burner as it is possible to regulate the air for combustion very nearly to the required amount on account of the great variety of speeds possible with the attached turbo-blower. Thorough tests have been made of this new type of burner by the navy at the fuel oil testing plant in the Philadelphia navy yard.

In installations where these oil burners are used, the steam piping can be arranged so that one adjustment of one master valve on the line supplying steam to the turbines will regulate the air supply to all burners in operation. Near the master steam valve, an oil master valve can be placed in the oil supply line for regulating the amount of oil to all burners, and in this way any number of units are under the control of one man to obtain the best possible combustion with minimum adjustment. The exhaust steam from the individual turbines is returned to the hot well or directly to the feed water heater. Each turbine is fitted with oil sight, cup and breather, steam strainer and re-

## Marine News in a Personal Way

DUDLEY W. BURCHARD has been appointed general manager on the Pacific coast for the United American lines which recently withdrew from the American-Hawaiian line and inaugurated service between the north Pacific and Europe. Mr. Burchard's headquarters will be at San Francisco. He is a widely known shipping man, formerly north Pacific agent at Seattle for the Kosmos line. During the early years of the shipping board, he was district manager at Seattle for that corporation.

\* \* \*

EDWARD TORNEY, formerly with the Outer Harbor Dock & Wharf Co., has been made dock superintendent at San Pedro, Cal., for the Garland line.

\* \* \*

D. C. GORMAN has taken charge of the permanent office opened in New York to exploit the shipping facilities of Seattle. Mr. Gorman has been the port's traveling representative in the east.

\* \* \*

CAPT. H. H. BIRKHOLM, for several years Seattle manager of the General Steamship Co., has been transferred to San Francisco to become operating manager for the same company. He has been succeeded at Seattle by his former assistant, R. K. BROWN.

\* \* \*

R. W. BRUCE, for three years representative of the Admiral-Oriental line in the Far East, has been appointed general agent at Chicago for the same company. He succeeds A. G. HENDERSON who has gone to Shanghai to represent the Great Northern line in the Orient.

\* \* \*

STEPHEN MAYHOOD has been assigned to the north Pacific as service agent of the interstate commerce commission. He will be stationed in Portland, Oreg., during the rush shipping season while the crops are moving. It is expected that this office will be of great service to shippers.

\* \* \*

H. S. EATON, formerly connected with the Admiral line organization and more recently manager of the Waterfront Employers Union at Portland, Oreg., has been appointed general western claim agent for the Luckenbach Steamship Co., with headquarters at San Francisco. Mr. Eaton succeeds J. A. WRIGHT.

\* \* \*

W. D. BENSON, Pacific coast manager of the Transmarine Corp., has announced the appointment of GEORGE T. DARRAGH formerly dock superintendent for the Garland line, as San Pedro manager for the line. Offices have been opened in the A. G. Bartlett building, Seventh and Spring streets, Los Angeles.

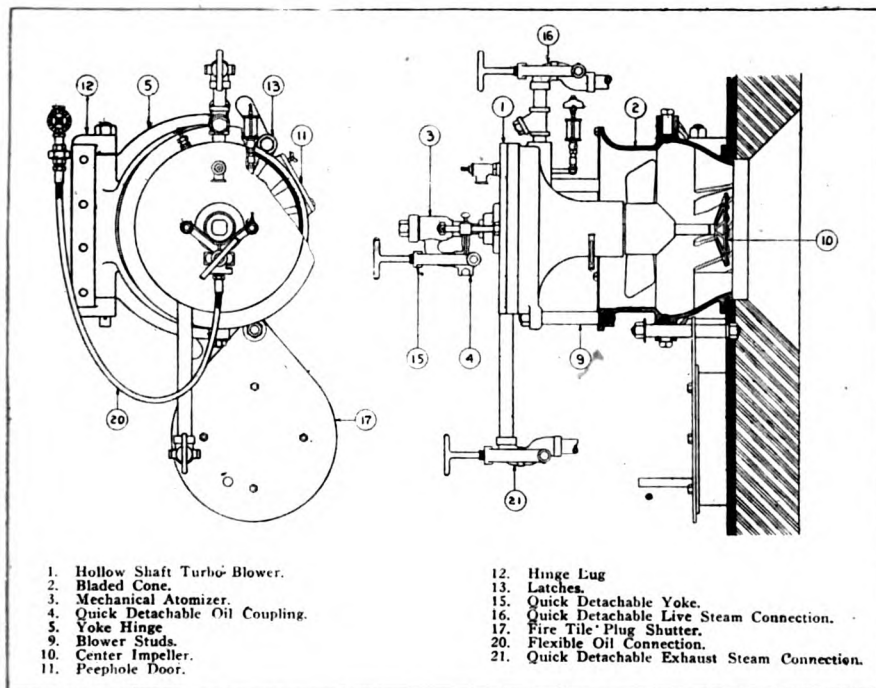


FIG. 3—DETAILS OF DESIGN OF NEW OIL BURNER

to the same number of burners, as this blower must be kept running constantly even though only a few of the total number of burners are in use, whereas, with the above self-contained type when a burner is not in use, no steam

lief valve. The following installations have been made up to a recent date: U. S. S. MAYFLOWER, yacht of the President; steam yacht IDALIA; ZAREMBO; Scotch boilers; WINONA, water tube boilers.



# Business News for the Marine Trade

The Providential Navigation Corp. was incorporated with a Delaware charter for \$200,000.

To own, operate and acquire tank ships, steamships, barges, tugs, lighters or other vessels, the Union Tank Ship Corp. was incorporated in Delaware with \$2,850,000 capital.

The Boylan Towing Line, Inc., was incorporated to deal in steamships, barges, etc., under a Delaware charter with a capitalization of \$100,000.

Contract for the general overhauling of the United States shipping board steamer *PALLAS* has been awarded to the General Engineering & Drydock Co.

Harland & Wolff, Belfast, Ireland, have booked a contract for three additional vessels for the fleet of Andrew Weir & Co., London. The ships will be built in the Govan yards of the company.

The shipyard properties of the Crook Shipbuilding Co. at Baltimore are to be sold to that municipality at a stated price of \$440,000. Included in the sale are land having a frontage of 462 feet on the harbor and 1000 feet in length, a pier 80 x 600 feet and a 60 x 565-foot building, a warehouse 115 x 320 feet, railroad sidings, office building, etc. The city will use the property in connection with its proposed harbor improvements.

Contract for the building of a twin-screw motor tanker for British owners was obtained by the Nederland Shipbuilding Co., Amsterdam. The ship is to be fitted with a twin set of Werkspoor-Diesel engines to be built by the Werkspoor Co., Amsterdam.

Dredging has begun on the second section of the main channel of Jamaica bay from the entrance to Mill basin up to Paerdegat basin.

The African Imports Co. was incorporated for \$300,000 in Delaware to conduct an importing and exporting business.

Incorporation papers were filed in Delaware by the National Diesel Engine Works, Inc., with a capitalization of \$1,050,000, to manufacture and sell engines, motors, etc.

The Interseas Trading Syndicate was incorporated to carry on a business of importing and exporting with a capital of \$100,000.

Pearless Machine Corp. has been incorporated with a capitalization of \$500,000 to manufacture and deal in machinery, air compressors, tools, engines, boiler pipes, etc.

The Ohio River Transportation Co. was incorporated with a capital of \$100,000 to carry on a general freightage business.

European shipyards are constructing two tankers, of 10,000 and 11,000 tons deadweight for oil carrying use in the Los Angeles trade. These ships will be equipped with diesel engines and will probably fly the Norwegian flag.

The steamer *PHILADELPHIA* has been auctioned to satisfy debts for repairs and supplies incurred while tied up at Naples since July, 1922. The ship was the property of the New York-Naples Steamship Co. and was sold to G. B. Bertoselli, Genoa, Italy, for 2,500,000 lire. It is reported that the ship will be scrapped.

Work on the further extension of the Houston, Tex., canal has been delayed as no agreement has been met on the bids submitted for the channel improvement, all bids being considered too high.

The steamer *WOONSOCKET* was sold at public auction for \$175,000 at Port Johnson, N. J., to the Matson Navigation Co., San Francisco.

A new basin and three wharves in the harbor of the port of Montevideo are to be built to provide for river passenger traffic and light

## Business Changes

**A**FTER Oct. 1, the Philadelphia office of the Power Specialty Co., manufacturer of superheaters, economizers and oil heaters, will be located in the Atlantic building at Broad and Spruce streets.

\* \* \*

The United American lines has established a Pacific coast passenger office at 230 California street, San Francisco. According to an announcement by Emil Lederer, vice president in charge of passenger traffic, the new office will have jurisdiction over the Pacific coast states of the United States and Canada. It will be in charge of Theodore Henry Jacobs who has been appointed Pacific coast passenger manager. The acquisition of the steamship *CLEVELAND* by the United American lines and the addition of the new Hamburg-American line steamers *ALBERT BALLIN* and *DEUTSCHLAND* are responsible for the establishment of the new office in the interest of the joint service maintained by the two companies.

steamers, according to reports from the "Comision Financiera de las Obras del Puerto de Montevideo."

Five ships built during the war for transports may be turned into carriers for the recently organized Ocean Fruit Express Co. operating on the Pacific coast.

Terminals for ocean shipping will be built by the Pacific Steamship Co. on 25½ acres of land bought from the Skinner & Eddy Corp. in Seattle. Plans include three large piers, a general office building and warehouses of large capacity.

The Pittsburgh & Memphis Transportation Co. was incorporated for \$400,000 to operate boats and barges.

Judge Lynch of the United States district court at Trenton, N. J., on Sept. 17 heard the case of why the Pusey & Jones shipyard at Gloucester City, N. J., should not be sold clear of all liens. The shipyard has been idle for two years and the receivers are endeavoring to sell it. There is due the city of Gloucester about \$150,000 in taxes.

A public auction sale of navy supplies will be held by the United States at Mare island navy yard, Vallejo, Cal., on Sept. 21.

The Elliptic Auto Light, Ltd., has been incorporated to manufacture motors, engines, etc., by George Murphy, Samuel J. Tucker and Florence Ready, with a capital of \$1,000,000.

The Marvel Equipment Co. of Canada, Ltd., has been incorporated by Robert J. Graham, William E. Rowsome and Harry C. MacKay for \$40,000 to manufacture oil pumps, transmission, lubricating pumps, etc.

## New Trade Publications

**INDUCTION FURNACES.**—An illustrated 6-page catalog on induction furnaces has been published by the Ajax Electrothermic Corp., Trenton, N. J. Stationary portable types are described.

**UNIFLOW BOILERS.**—The Lebanon

Boiler Works, Philadelphia, has issued a 24-page illustrated bulletin in which uniflow boilers are described. Safety, compactness, accessibility, etc., of the boilers is pointed out and horsepower ratings as well as other data given.

**MECHANICAL OIL BURNER.**—A 40-page catalog has been published by the Bethlehem Shipbuilding Corp., Ltd., Bethlehem, Pa., describing in a comprehensive manner the operation of an oil burning system and showing the various parts of burners, furnace fronts, heaters, strainers, pumps, etc. Four tables are given in connection with the instruction for operation of the burners.

**CONDUITS.**—The Crouse-Hinds Co., Syracuse, N. Y., has issued a 4-page bulletin in which the difficulties experienced with large conductors where bends are incorporated in the conduit system are pointed out. The bulletin goes into some detail regarding the company's line of conduits, which, it is claimed, counteract these difficulties. Sizes of cover openings of different types are given.

**RIVETS.**—The S. Severance Mfg. Co., Glassport, Pa., has issued a supplement to its data book, "Rivets," which was published three years ago. Manufacturing, cutting, and painting of rivets is discussed with regard to dies, production requirements, etc. The results of investigations on the effect of riveting on steel plate and the presence of sulphur in rivet steel are presented together with information regarding the use of electric rivet heaters.

**AIR VALVES.**—A folder issued by Tate-Jones & Co., Inc., Pittsburgh, shows illustrations of air gate valves, and an oil strainer for use in a fuel oil feed line. The air valves described are for use in lines where the pressure ranges up to 5 pounds. Loss of power and fuel due to leaks in the air lines and shut-offs is pointed out.

**STEEL FORGING INSTRUCTIONS.**—The Vanadium Corp. of America, New York, has issued a sheet of instructions concerning the forging of carbon vanadium steel. The effect of vanadium on the electric limit of steel and its ability to decrease the danger of injury from overheating are pointed out. The necessity of obtaining proper forging temperature is emphasized. The instructions also have been put out on heavy, waterproofed cardboard for posting in shops.

**GRAB BUCKETS.**—An illustrated 35-page pamphlet has been issued by the Blaw-Knox Co., Pittsburgh, and contains detailed descriptions of single line grab buckets for foundry, railroad and dredging use. Single rope cableways are treated in similar fashion and several other items such as standard buildings, concrete forms and watercooled furnace appliances are taken up briefly and illustrated.

**OIL PUMPS.**—Force and sight feed oil pumps designed to lubricate the cylinders of steam engines, steam pumps, air compressors, etc., are described in a circular issued by the Manzel Bros. Co., 309 Black street, Buffalo.

**INDUSTRIAL TRUCKS.**—Electric industrial trucks and tractors is the subject of a new catalog published by the Crescent Truck Co., Lebanon, Pa. The introductory part of the book is devoted to illustrated descriptions of the various truck units such as the controller, motor, drive shafts, bearings, gears, frame, etc. The remainder of the book is filled with illustrations and specifications of trucks in actual use. These include utility trucks, dump trucks, 3 and 4-wheel tractors, low and elevating platform trucks, and trailers.